

- 1. Filler metals for welding stainless steels**  
**Filler metals for welding heat resistant, non-scaling and highly corrosion-proof steels**  
**Filler metals for joint welding austenitic/ferritic steels**
  
- 2. Filler metals for aluminium welding**  
**Filler metals for titanium welding**
  
- 3. Filler metals for welding mild steels and low-alloyed steels,**  
**special electrode for chamfering**
  
- 4. Filler metals for welding nickel, nickel alloys and cast iron**
  
- 5. Filler metals for hard surfacing and repair welding on cold and hot work as well as high speed steels. Cobalt base alloys**
  
- 6. Filler metals for welding copper and copper alloys**
  
- 7. Flux-cored wires**
  
- 8. Approvals**

MTC stands for quality, reliability and competence in the field of welding filler materials. As a long-standing partner of the welding industry, we are proud to support our customers in the best possible way and to meet their individual requirements. Our dedicated team looks forward to providing you with advice and assistance at any time and building a long-term partnership. Contact us today and discover the variety of our high-quality welding consumables!

#### Our employees - the heart of our success

The real secret of MTC's sustainable economic success lies in the competence, know-how and diligence of its employees. Continuous qualification and further training measures as well as a healthy working atmosphere promote the strong team spirit within the workforce and form the indispensable basis for performance at the highest level. Motivation and flexibility have the highest priority in all areas of the company, from order acceptance through quality control to shipping. Expert advice, friendly service and tailor-made problem solutions are a matter of course for MTC.

#### Our strengths - your advantage

- High flexibility: We adapt to the individual requirements of our customers.
- Fast quotation: We offer you tailor-made offers in a timely manner.
- Fast processing and delivery: Your orders are processed efficiently and delivered promptly.
- Good accessibility: We are always available for you to discuss your concerns.
- High stock availability: Our extensive stock guarantees a reliable supply.
- Large scope of approvals: We have extensive approvals for our products.
- Deliveries to specialist retailers:

## **Approvals**

**METAL TECHNOLOGY- CANTERBO GMBH**<sup>®</sup>

**Is admitted to:**

**DIN EN ISO 9001:2015**

**VdTÜV1153 und AD 2000-leaflet W0**

**TÜV Nord Certificate on factory production control according to EN 13479; Annex ZA (CE Mark)**

**As the individual approvals are continuously adapted to the latest requirements, we ask you to request authorizations if necessary, you can download the latest TÜV approvals from our homepage.**

**(A general note is noted on the characteristic sheets).**

**In the case of specific acceptance tests, the relevant requirements must already be mentioned at the start-up stage.**

**Particularly when ordering, the scope of testing is to be requested in advance.**

**MIG / MAG – Solid Wire**

**WIG / TIG - Rods**

**MIG / MAG – Flux core wires**

**Open Arc - Flux core wires**

**UP - Flux – Solid wire**

**Electrodes**

**Braze**

**Welding and soldering consumables for  
manufacturing and repair.**

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MTC-Name		Material No.	AWS	Page
MIG/TIG	MT-410	1.4009	ER 410	1.03
MIG/TIG	MT-410 NiMo	1.4351	ER 410 NiMo	1.04
Elektr.	MT-410 HL	1.4009	E 410-17	1.05
MIG/TIG	MT-430	1.4015	ER 430	1.06
MIG/TIG	MT-4115	1.4115	-	1.07
Elektr.	MT-4115	1.4115	-	1.08
MIG/TIG	MT-430 Ti	1.4502	~ER 439	1.09
MIG/TIG	MT-308 H	-	~ER 308 H	1.10
MIG/TIG	MT-308 L	1.4316	ER 308 LSi	1.11
Elektr.	MT-308 L	1.4316	E 308 L-16	1.12
Elektr.	MT-308 HL	1.4316	E 308 L-17	1.13
MIG/TIG	MT-347	1.4551	ER 347 Si	1.14
Elektr.	MT-347	1.4551	E 347-16	1.15
MIG/TIG	MT-316 L	1.4430	ER 316 LSi	1.16
Elektr.	MT-316 L	1.4430	E 316 L-16	1.17
Elektr.	MT-316 LV	1.4430	E 316 L-17	1.18
Elektr.	MT-316 HL	1.4430	E 316 L-17	1.19
MIG/TIG	MT-318	1.4576	ER 318 Si	1.20
Elektr.	MT-318	1.4576	E 318 -16	1.21
MIG/TIG	MT-4820	1.4820	ER 25 4	1.22
Elektr.	MT-4820	1.4820	E 25 4	1.23
MIG/TIG	MT-309	1.4829	ER 309 Si	1.24
Elektr.	MT-309	1.4829	E 309 H -16	1.25
MIG/TIG	MT-309 L	1.4332	ER 309 LSi	1.26
Elektr.	MT-309 L	1.4332	E 309 L-16	1.27
MIG/TIG	MT-310	1.4842	ER 310	1.28
Elektr.	MT-310	1.4842	E 310-16	1.29
Elektr.	MT-310 B	1.4842	E 310-15	1.30
MIG/TIG	MT-4462	1.4462	ER 2209	1.31
Elektr.	MT-4462	1.4462	E 2209	1.32
Mig/Tig	MT-904 L	1.4519	ER 385	1.33
Elektr.	MT-904 L	1.4519	E 385-17	1.34
MIG/TIG	MT-307	1.4370	ER 307	1.35
Elektr.	MT-307	1.4370	E 307-16	1.36
Elektr.	MT-307 B	1.4370	E 307-15	1.37
Elektr.	MT-307 HL	1.4370	E 307-26	1.38
MIG/TIG	MT-312	1.4337	ER 312	1.39
Elektr.	MT-312	1.4337	E 312-16	1.40
Elektr.	MT-312 HL	1.4337	E 312-26	1.41
Elektr.	MT-309 Mo	1.4459	E 309 MoL-16	1.42
MIG/TIG	MT-Superduplex	~1.4410	ER 2594	1.43

**Allocation base material – filler material**

Material No.	Short term	Filler metals MTC	Page
1.4000	X7 Cr 13	MT-410	1.03 / 1.05
1.4001	X7 Cr 14	MT-410	1.03 / 1.05
1.4002	X7 CrAl 13	MT-410	1.03 / 1.05
1.4006	X10 Cr 13	MT-410	1.03 / 1.05
1.4008	G-X 12 Cr 14	MT-410	1.03 / 1.05
1.4016	X8 Cr 17	MT-430 Ti	1.08
1.4021	X20 Cr 13	MT-410	1.03 / 1.05
1.4024	X15 Cr 13	MT-410	1.03 / 1.05
1.4057	X20 CrNi 17 2	MT-430	1.06
1.4059	G-X CrNi 17	MT-430	1.06
1.4113	X6 Cr Mo 17	MT-430 Ti	1.08
1.4122	G-X 35 Cr Mo 17	MT-4115	1.07
1.4301	X5 CrNi 18 10	MT-308 L / MT-347	1.10 / 1.13
1.4303	X4CrNi18-12	MT-308 L / MT-347	1.10 / 1.13
1.4306	X2CrNi19-11	MT-308 L / MT-347	1.10 / 1.13
1.4307	X2CrNi18-9	MT-308 L / MT-347	1.10 / 1.13
1.4308	GX5CrNi19-10	MT-308 L / MT-347	1.10 / 1.13
1.4311	X2CrNi18-10	MT-308 L / MT-347	1.10 / 1.13
1.4312	GX10CrNi18-8	MT-308 L / MT-347	1.10 / 1.13
1.4313	X3CrNiMo13-4	MT-410 NiMo	1.04
1.4318	X2CrNi18-7	MT-308 L / MT-347	1.10 / 1.13
1.4340	GX40CrNi27-4	MT-4820	1.21 / 1.22
1.4347	GX6CrNiN26-7	MT-4820	1.21 / 1.22
1.4362	X2 CrNiN 23 4	MT-4462	1.30 / 1.31
1.4401	X5CrNiMo17-12-2	MT-316 / MT-318	1.15 / 1.19
1.4404	X2CrNiMo17-12-2	MT-316 / MT-318	1.15 / 1.19
1.4406	X2CrNiMoN17-11-2	MT-316 / MT-318	1.15 / 1.19
1.4407	GX5CrNiMo13-4	MT-410 NiMo	1.04
1.4408	GX5CrNiMo19-11-2	MT-316 / MT-318	1.15 / 1.19
1.4410	X2CrNiMoN25-7-4	MT-Superduplex	1.42
1.4414	GX4CrNiMo13-4	MT-410 NiMo	1.04
1.4420	X5 CrNiMo 18 11	MT-316 / MT-318	1.15 / 1.19
1.4426	GX10CrNiMoN15-4-2	MT-4462	1.30 / 1.31
1.4429	X2CrNiMoN17-13-3	MT-316 / MT-318	1.15 / 1.19
1.4435	X2CrNiMo18-14-3	MT-316 / MT-318	1.15 / 1.19
1.4436	X3CrNiMo17-13-3	MT-316 / MT-318	1.15 / 1.19
1.4460	X3CrNiMoN27-5-2	MT-4462	1.30 / 1.31
1.4462	X2CrNiMoN22-5-3	MT-4462	1.30 / 1.31
1.4463	GX6CrNiMo24-8-2	MT-4462	1.30 / 1.31
1.4464	GX40CrNiMo27-5	MT-4462	1.30 / 1.31
1.4468	GX2CrNiMoN25-6-3	MT-Superduplex	1.42
1.4469	GX2CrNiMoN26-7-4	MT-Superduplex	1.42
1.4501	X2CrNiMoCuWN25-7-4	MT-Superduplex	1.42
1.4510	X8 CrTi 17	MT-430 Ti	1.08
1.4511	X8 CrNb 17	MT-430 Ti	1.08
1.4512	X2CrTi12	MT-307	1.34 / 1.35
1.4515	GX3CrNiMoCuN26-6-3	MT-Superduplex	1.43
1.4523	X8 CrMoTi 17	MT-430 Ti	1.08

**Allocation base material – filler material**

Material No.	Short term	Filler metals MTC	Page
1.4529	X1NiCrMoCuN25-20-7	MT-Nicro 625	4.10
1.4531	GX2NiCrMoCuN20-18	MT-904 L	1.32 / 1.33
1.4539	X1NiCrMoCu25-20-5	MT-904 L	1.32 / 1.33
1.4541	X6CrNiTi18-10	MT-308 L / MT-347	1.10 / 1.13
1.4550	X6CrNiNb18-10	MT-308 H	1.09
1.4552	GX5CrNiNb19-11	MT-308 L / MT-347	1.10 / 1.13
1.4558	X2NiCrAlTi32-20	MT-Nicro 625	4.10
1.4562	X1NiCrMoCu 32 28 7	MT-4607	4.15
1.4563	X1NiCrMoCuN 31 27 4	MT-4607	4.15
1.4571	X6CrNiMoTi17-12-2	MT-316 L / MT-318	1.15 / 1.19
1.4573	GX3CrNiMoCuN24-6-5	MT-316 L / MT-318	1.15 / 1.19
1.4580	X6CrNiMoNb17-12-2	MT-316 L / MT-318	1.15 / 1.19
1.4581	GX5CrNiMoNb19-11-2	MT-316 L / MT-318	1.15 / 1.19
1.4582	X4CrNiMoNb25-7	MT-4462	1.30 / 1.31
1.4583	X10CrNiMoNb18-12	MT-316L / MT-318	1.15 / 1.19
1.4585	GX7CrNiMoCuNb18-18	MT-904 L	1.32 / 1.33
1.4586	X5NiCrMoCuNb22-18	MT-904 L	1.32 / 1.33
1.4724	X10CrAlSi13	MT-4820	1.21 / 1.22
1.4729	GX40CrSi13	MT-309	1.23 / 1.24
1.4740	GX40CrSi17	MT-430	1.06
1.4742	X10CrAlSi18	MT-430	1.06
1.4815	GX8CrNi19-10	MT-308 H	1.09
1.4821	X15CrNiSi25-4	MT-4820	1.21 / 1.22
1.4822	GX40CrNi24-5	MT-4820	1.21 / 1.22
1.4823	GX40CrNiSi27-4	MT-4820	1.21 / 1.22
1.4825	GX25CrNiSi18-9	MT-307	1.34 / 1.35
1.4826	GX40CrNiSi22-9	MT-309	1.23 / 1.24
1.4827	GX8CrNiNb19-10	MT-308 H	1.09
1.4828	X15CrNiSi20-12	MT-309	1.23 / 1.24
1.4832	GX25CrNiSi20-14	MT-309	1.23 / 1.24
1.4833	X12CrNi23-13	MT-310	1.27 / 1.28
1.4837	GX40CrNiSi25-12	MT-310	1.27 / 1.28
1.4840	GX15CrNi25-20	MT-310	1.27 / 1.28
1.4841	X15CrNiSi25-21	MT-310	1.27 / 1.28
1.4845	X8CrNi25-21	MT-310	1.27 / 1.28
1.4876	X10NiCrAlTi32-21	MT-82	4.07
1.4878	X8CrNiTi18-10	MT-308 H	1.09
1.4948	X6CrNi18 11	MT-308 H	1.09
1.6902	GX6CrNi18-10	MT-308 L	1.10
1.6905	GX5CrNiNb18-10	MT-308 L	1.10
1.6907	X3CrNiN18-10	MT-308 L	1.10
1.6909	X5CrMnNiN18-9	MT-308 L	1.10
1.6967	X3CrNiMoN18-14	MT-308 L	1.10

The information on our products contained in the table are based on careful examination.

We assume no liability for the correctness.

We ask the user to check our data and the products for their own use.

## MT-410

## 1.4009

Ferritic chrome steel wire for MIG/TIG welding of stainless chrome steels.

### Standard designation

Material No.	1.4009
AWS/ASME SFA-5.9	~ ER 410
EN ISO 14343-A	G/W 13

### Main base metals

Ferritic chrome steel, e.g.

1.4000	X 6 Cr 13	1.4008	G-X 8 Cr 13
1.4001	X 7 Cr 14	1.4021	X 20 Cr 13
1.4002	X 6 CrAl 13	1.4006	X 12 Cr 13

### Mechanical properties of all - weld - metal (typical values)

Gas shield Thermal treatment Test temperature		[°C]	I1 untreated +20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	250
Tensile strength	R <sub>m</sub>	MPa	450
Elongation	A <sub>5</sub>	[%]	15

### Average chemical composition of all weld – metal (%)

C	Si	Mn	Cr
0,07	0,60	0,50	14,5

### Structure

Martensite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11, M 21, M 23 and M 32

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +



## MT- 410 NiMo

## 1.4351

Ferritic chrome nickel steel wire for MIG/TIG welding of stainless chrome nickel steels.

### Standard designation

Material No.	1.4351
AWS/ASME SFA-5.9	~ER 410 NiMo
EN ISO 14343-A	G/W 13 4

### Main base metals

Ferritic chrome nickel steels, e.g.

1.4313	X3CrNiMo13-4
1.4407	GX5CrNiMo13-4
1.4414	GX4CrNiMo13-4

### Mechanical properties of all - weld - metal (typical values)

Gas shield	Thermal treatment	Test temperature	[°C]	I1 untreated +20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa		600
Tensile strength	R <sub>m</sub>	MPa		750
Elongation	A <sub>5</sub>	[%]		15

### Average chemical composition of all weld – metal (%)

C	Si	Mn	Cr	Ni	Mo
0,03	0,80	0,70	13	4,5	0,5

### Structure

Martensite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 13

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-430

## 1.4015

Ferritic chrome steel MIG/TIG wire for welding stainless chrome steels.

### Standard designation

Material No.	1.4015
AWS/ASME SFA-5.9	~ER 430
EN ISO 14343-A	G 17/W17

### Main base metals

Ferritic chrome steels, e.g.

1.4057	X 20 CrNi 17 2	1.4059	G-X CrNi 17
1.4740	G-X 40 CrSi 17	1.4742	X 10 CrAl 18

### Mechanical properties of all - weld - metal

(typical values)

Gas shield			M 11 untreated + 800°C
Thermal treatment			
Test temperature		[°C]	
0,2%-yield strength	R <sub>p0,2</sub>	MPa	300
Tensile strength	R <sub>m</sub>	MPa	450
Elongation	A <sub>5</sub>	[%]	15

### Average chemical composition of all weld – metal (%)

C	Si	Mn	Cr
0,07	0,8	0,7	17,5

### Structure

Ferrit martensite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11, M 23, M 21 and M 32

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter            0,8mm            1,0mm            1,2mm            1,6mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- 4115

## 1.4115

Ferritic chrome steel MIG wire for welding stainless chrome steels.

### Standard designation

Material No.	1.4115
EN ISO 14700	S Fe 7

### Main base metals

Ferritic chrome steel, e.g.  
1.4122 G – X35 Cr Mo 17

### Mechanical properties of all - weld - metal (typical values)

Gas shield Thermal treatment Test temperature		[°C]	M 12 untreated +760°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	500
Tensile strength	R <sub>m</sub>	MPa	700
Elongation	A <sub>5</sub>	[%]	15
Hardness		HB	400

### Average chemical composition of all weld – metal (%)

C	Si	Mn	Cr	Mo
0,2	0,6	0,4	17	1,1

### Structure

Martensite/ferrite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 12, M 13

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter                    0,8mm                    1,0mm                    1,2mm                    1,6mm

### Current/Polarity TIG Current/Polarity MIG

= -  
= +

## MT-4115

## 1.4115

**Basic coated high-recovery stick electrode suitable for welding of similar alloyed stainless chromium steels. Overlay welding of steam and gas fitting for service temperatures up to 450°C.**

### Standard designation

EN ISO 3581-A	EZ 17 1 B 42
Material No.	1.4115

### Main base metals

1.4313  
1.4000  
1.4001  
1.4002

### Mechanical properties of all - weld - metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°	untreated -196°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	≥650	
Tensile strength R <sub>m</sub>	MPa	≥700	
Elongation A <sub>5</sub>	[%]	≥15	
Impact strength A <sub>v</sub>	[J]	LNB	LNB

### Average chemical composition of all weld – metal (%)

C	Cr	Mn	Mo	Ni
0,15-0,20	16,0-17,0	0,7	0,8-1,2	0,5

### Application notes

Preheating: similar base metals: 300 – 400°C,  
dissimilar base metals: 150 – 350°C.

### Redrying

2h at 320°C.

### Approvals

-

### Diameters, welding current unit weights

Diameter [mm]	Lenght [mm]	Current [A]	Average weight [kg/1000 pcs.]	Pieces Per box	Kg per box
2,50	350	60 - 90			5,0
3,25	350	80 - 110			5,0
4,00	350	100 - 150			5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PF, PC

### Current/Polarity

= +

## MT- 4122

## 1.4122

Wire electrode made of ferritic chromium steel for MIG/MAG welding of rustproof chromium steels. Deposit welding on sealing surfaces of fittings made of unalloyed and low-alloy steels.

### Standard designation

EN 12072	G Z 17 Mo H
Material No.	1.4122

### Mechanical properties of all - weld - metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°	untreated -196°C
0,2%-yield strength $R_{p0,2}$	MPa	≥750	
Tensile strength $R_m$	MPa	≥550	
Elongation $A_5$	[%]	≥12	

### Average chemical composition of all weld – metal (%)

C	Si	Mn	Cr	Mo	Ni
0,40	0,50	0,50	16,5	1,00	1,00

### Gas types applicable MIG

M 12, M 13

### MIG welding wire

Diameter            1,0 mm            1,2 mm            1,6 mm

### Current/Polarity MIG

= +

## MT-430 Ti

## 1.4502

Ferritic chrome steel MIG/TIG wire for welding stainless chrome steels, non – scaling up to +900°C.

### Standard designation

Material No.	1.4502
AWS/ASME SFA-5.9	~ ER 439
EN ISO 14700	S Fe 7

### Main base metals

Ferritic chrome steel, e.g.

1.4000	X 6 Cr 13	1.4510	X 8 CrTi 17
1.4002	X 6 CrAl 13	1.4511	X 8 CrNb 17
1.4016	X 8 Cr 17	1.4523	X 8 CrMoTi 17
1.4113	X 6 Cr Mo 17	1.4057	X 17 CrNi16-2

### Mechanical properties of all - weld - metal (typical values)

Gas shield	Thermal treatment	Test temperature	[°C]	I1 untreated +20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa		≥220
Tensile strength	R <sub>m</sub>	MPa		≥410
Elongation	A <sub>5</sub>	[%]		≥15

### Average chemical composition of all weld – metal (%)

C	Si	Mn	Cr	Ti
0,08	1,0	0,6	17,5	0,5

### Structure

Deltaferrite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 12, M 13

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- 308 H

**MIG/TIG wire with high carbon content, for welding high temperature resistant steels.**

**High temperature resistant up to +700°C.**

### Standard designation

EN ISO 14343-A	G 19 9 H/W 19 9 H
AWS/ASME SFA-5.9	~ER 308 H

### Main base metals

Stainless steel austenitic Cr-Ni steel / cast steel, e.g.

1.4948 X 6 Cr Ni 18 11

1.4878 X 12 CrNiTi 18 9

1.4550 X 6 CrNiNb 18 10

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 untreated +20°C -196°C		MIG M 11 untreated +20°C -196°C	
0,2%-yield strength R <sub>p0,2</sub>	MPa	320		320	
1,0%-yield strength R <sub>p1,0</sub>	MPa	350		350	
Tensile strength R <sub>m</sub>	MPa	500		500	
Elongation A <sub>5</sub>	[%]	35		35	
Impact strength A <sub>v</sub>	[J]	70		70	

### Average chemical composition of all weld – metal (%)

C	Si	Mn	Cr	Ni
0,04-0,08	0,65	1,0-2,5	19,5-22,0	9,0-11,0

### Structure

Austenite with 5% ferrite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11, M 23

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm 1,6mm

Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF, PE

Current/Polarity TIG

= -

Current/Polarity MIG

= +

## MT-308 L

## 1.4316

Chrome nickel steel MIG/TIG wire with very low carbon content, for welding stainless and cold-tough austenitic steels exposed to temperatures of up to +400°C. Cold-tough down to -196°C.

### Standard designation

Material No.	1.4316
AWS/ASME SFA-5.9	ER 308 L Si
EN ISO 14343-A	G 19 9 LSi/W 19 9 LSi

### Main base metals

Stainless austenitic chrome nickel steel/cast steel, e.g.

1.4306	X 2 Cr Ni 19 11	1.4301	X 5 CrNi 18 10
1.4306	X 7 Cr 14	1.4303	X 5 CrNi 18 12
1.4311	X 7 CrAl 13	1.4308	G-X 6 CrNi 18 9
1.4552	G-X 5 CrNiNb 18 9	1.4310	X 12 CrNi 17 7
1.4541	X 6 CrNiTi 18 10	1.4319	X 5 CrNi 18 7
1.4550	X 6 CrNiNb 18 10		

### Mechanical properties of all - weld - metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 untreated		MIG M 11 untreated	
		+20°C	-196°C	+20°C	-196°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	≥270		≥270	
Tensile strength R <sub>m</sub>	MPa	≥510		≥510	
Elongation A <sub>5</sub>	[%]	25		35	
Impact strength A <sub>v</sub>	[J]	LNB	LNB	LNB	LNB

### Average chemical composition of all - weld - metal (%)

C	Si	Mn	Cr	Ni
0,03	0,65-1,20	1,0-2,50	19,0-21,0	9,0-11,0

### Structure

Austenite with delta ferrite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11, M 12

### Approvals

TÜV, DB, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,00	1000	10,0
1,20	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF, PE

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +



# MT-308 L

# 1.4316

Rutile coated electrode for welding stainless austenitic steels.  
Weld metal of austenitic chrome nickel steel, very low carbon content, suitable for working temperatures of up to +350°C.  
Cold – tough down to – 60°C.

**Standard designation**

EN ISO 3581-A	E 19 9 LR 12
Material No.	1.4316
AWS/ASME SFA-5.4	E 308 L – 16

**Main base metals**

Stainless austenitic chrome nickel steel/cast steel, e.g.

1.4306	X 2 Cr Ni 19 11	1.4301	X 5 CrNi 18 10
1.4306	X 7 Cr 14	1.4303	X 5 CrNi 18 12
1.4311	X 7 CrAl 13	1.4308	G-X 6 CrNi 18 9
1.4552	G-X 5 CrNiNb 18 9	1.4310	X 12 CrNi 17 7
1.4541	X 6 CrNiTi 18 10	1.4319	X 5 CrNi 18 7
1.4550	X 6 CrNiNb 18 10		

**Mechanical properties of all - weld – metal (typical values)**

Thermal treatment		[°C]	untreated + 20°C		untreated - 60°C	
Test temperature						
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥320			
Tensile strength	R <sub>m</sub>	MPa	≥510			
Elongation	A <sub>5</sub>	[%]	≥30			
Impact strength	A <sub>v</sub>	[J]	LNB		-	

**Average chemical composition of all - weld - metal (%)**

C	Si	Mn	Cr	Ni
0,04	1,2	2,0	18,0-21,0	9,0-11,0

**Structure**

Austenite with delta ferrite

**Redrying**

2h at +350°C. Not Essentially Required.

**Approvals**

TÜV, DB, CE

**Diameters, welding current unit weights**

Diameter [mm]	Lenght [mm]	Current [A]	Average weight [kg/1000 pcs.]	Pieces Per box	Kg per box
1,50	250	30-40	5,4	463	2,5
2,00	300	40-60	11,6	345	4,0
2,50	300	60-90	18,2	220	4,0
3,25	350	80-110	35,7	140	5,0
4,00	350	100-150	53,8	93	5,0
5,00	450	150-190	108,0	56	6,0

**Welding positions acc.to EN ISO 6947**

PA, PB, PC, PE, PF

**Current/Polarity**

= +/ ~

## MT-308 HL

## 1.4316

Rutile coated high deposition electrode giving 150% recovery, designed for welding stainless austenitic steels.

Weld metal of austenitic chrome nickel steel, very low carbon content, suitable for working temperatures of up to +350°C.

### Standard designation

Material No.	~1.4316
AWS/ASME SFA-5.4	~ E 308 L-17
EN ISO 3581-A	E 19 9 LR 53

### Main base metals

Stainless austenitic chrome nickel steel/cast steel, e.g.

1.4306	X 2 CrNi 19 11	1.4301	X 5 CrNi 18 10
1.4306	G-X 2 CrNi 18 9	1.4303	X 5 CrNi 18 12
1.4311	X 2 CrNiN 18 10	1.4308	G-X 6 CrNi 18 9
1.4552	G-X 5 CrNiNb 18 9	1.4310	X 12 CrNi 17 7
1.4541	X 6 CrNiTi 18 10	1.4319	X 5 CrNi 18 7
1.4550	X 6 CrNiNb 18 10		

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature		[°C]	untreated +20°C	untreated -60°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	320	
Tensile strength	R <sub>m</sub>	MPa	540	
Elongation	A <sub>5</sub>	[%]	35	
Impact strength	A <sub>v</sub>	[J]	70	32

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,04	1,0	0,5-2,50	18,0-21,0	9,0-12,0

### Structure

Austenite with delta ferrite

### Redrying

1h at +350°C. Not Essentially Required.

### Diameters, welding current unit weights

Diameter [mm]	Lenght [mm]	Current [A]	Average weight [kg/1000 pcs.]	Pieces Per box	Kg per box
2,00	300	40-75	16,8	238	4,0
2,50	350	50-100	30,7	163	5,0
3,25	350	80-130	51,9	96	5,0
4,00	450	110-180	101,0	59	6,0

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity

= +/ ~

## MT-347

## 1.4551

TIG/MIG welding wire of stabilized austenitic chrome – nickel steel for welding stainless austenitic steels that are exposed to working temperatures up to +400°C; non – scaling up to +800°C.

### Standard designation

Material No.	1.4551
AWS/ASME SFA-5.9	~ER 347 Si
EN ISO 14343-A	G/W 19 9 NbSi

### Main base metals

Stainless austenitic chrome nickel steel/cast steel, e.g.

1.4541	X 6 CrNiTi 18 10	1.4301	X 5 CrNi 18 10
1.4550	X 6 CrNiNb 18 10	1.4303	X 5 CrNi 18 12
1.4552	G-X 5 CrNiNb 18 9	1.4308	G-X 6 CrNi 18 9
1.4319	X 5 CrNi 18 7	1.4310	X 12 CrNi 17 7
1.4306	X 2 CrNi 19 11	1.4312	G-X 10 CrNi 18 8
1.4306	G-X 2 CrNi 18 9		

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 untreated +20°C	MIG M 11 untreated +20°C -196°C	
0,2%-yield strength R <sub>p0,2</sub>	MPa	≥270	≥270	
Tensile strength R <sub>m</sub>	MPa	≥550	≥550	
Elongation A <sub>5</sub>	[%]	≥25	≥25	
Impact strength A <sub>v</sub>	[J]	-	-	

### Average chemical composition of all - weld - metal (%)

C	Si	Mn	Cr	Ni	(Nb+Ta)
0,08	0,65-1,2	1,0-2,50	19,0-21,0	9,0-11,0	10x%C.max1,0

### Structure

Austenite with delta ferrite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11, M 12

### Approvals

TÜV, DB, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF, PC  
PA, PB, PC, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

# MT-347

# 1.4551

**Rutile coated electrode for welding stainless austenitic steels.  
Weld metal of stabilized austenitic chrome nickel steel, suitable for  
working temperatures up to +400°C; non – scaling up to +800°C.**

### Standard designation

Material No.	1.4551
AWS/ASME SFA-5.4	E 347 -16
EN ISO 3581-A	E 19 9 Nb R 12

### Main base metals

Stainless austenitic chrome nickel steel/cast steel, e.g.

1.4306	X 2 CrNi 19 11	1.4301	X 5 CrNi 18 10
1.4306	G-X 2 CrNi 18 9	1.4303	X 5 CrNi 18 12
1.4312	G-X 10 CrNi 18 8	1.4308	G-X 6 CrNi 17 7
1.4541	X 6 CrNiTi 18 10	1.4310	X 12 CrNi 17 7
1.4550	X 6 CrNiNb 18 10	1.4319	X 5 CrNi 18 7
1.4552	G-X 5 CrNiNb 18 9		

### Mechanical properties of all weld metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°	untreated -120°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	≥350	
Tensile strength R <sub>m</sub>	MPa	≥550	
Elongation A <sub>5</sub>	[%]	≥25	
Impact strength A <sub>v</sub>	[J]	LNB	LNB

### Average chemical composition of all - weld - metal (%)

C	Si	Mn	Cr	Ni	(Nb+Ta)
0,08	1,2	2,0	18,0-21,0	9,0-11,0	8 x C max 1,1

### Structure

Austenite with delta ferrite

### Redrying

2h at +300°C. Not Essentially Required.

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight [kg/1000 pcs.]	Pieces per box	Kg per box
1,50	250	30-40	5,4	463	2,5
2,00	300	40-60	11,6	345	4,0
2,50	300	60-90	18,2	220	4,0
3,25	350	80-110	35,7	140	5,0
4,00	350	100-150	53,8	93	5,0
5,00	450	150-190	108,0	56	6,0

### Welding positions acc.to DIN EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/ ~

## MT-316 L

## 1.4430

MIG/TIG welding wire of austenitic chrome nickel molybdenum – steel, very low carbon content, for welding stainless and cold – tough austenitic steels exposed to working temperatures up to +400°C; cold – tough down to – 196°C.

### Standard designation

Material No.	1.4430
AWS/ASME SFA-5.9	~ER 316 L Si
EN ISO 14343-A	G/W 19 12 3 LSi

### Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel, e.g.

1.4404	X 2 CrNiMo 17 13 2	1.4571	X 6 CrNiMoTi 17 12 2
1.4404	G-X 2 CrNiMo 18 10	1.4573	X 10 CrNiMoTi 18 12
1.4406	X 2 CrNiMoN 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2
1.4429	X 2 CrNiMo 17 13 3	1.4581	G-X 5 CrNiMoNb 18 10
1.4435	X 2 CrNiMo 18 14 3	1.4583	X 10 CrNiMoNb 18 12
1.4408	G-X 6 CrNiMo 18 10	1.4436	X 5 CrNiMo 17 13 3
1.4401	X 5 CrNiMo 17 12 2	1.4420	X 5 CrNiMo 18 11

### Mechanical properties of all – weld – metal (typical values)

Welding process	Gas shield	Thermal treatment	Test temperature [°C]	TIG I 1 untreated		MIG M 11 untreated	
				+20°C	-196°C	+20°C	-196°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa		≥295		≥295	
Tensile strength	R <sub>m</sub>	MPa		≥510		≥510	
Elongation	A <sub>5</sub>	[%]		≥25		≥25	
Impact strength	A <sub>v</sub>	[J]		LNB	LNB	LNB	LNB

### Average chemical composition of all - weld - metal (%)

C	Si	Mn	Cr	Mo	Ni
0,03	0,65-1,2	1,0-2,50	18,0-20,0	2,5-3,0	11,0-14,0

### Structure

Austenite with deltaferrite

### Gas types applicable TIG Gas types applicable MIG

I1, R  
M 11, M 12

### Approvals

TÜV, DB, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,00	1000	10,0
1,20	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PF, PE

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-316 L

## 1.4430

Rutile coated electrode for welding austenitic chrome nickel molybdenum – steel, very low carbon content, for welding stainless and cold – tough austenitic steels exposed to working temperatures up to +400°C; cold – tough down to – 60°C.

### Standard designation

Material No.	1.4430
AWS/ASME SFA-5.4	E 316 L - 16
EN ISO 3581-A	E 19 12 3 LR 12

### Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel, e.g.

1.4404	X 2 CrNiMo 17 13 2	1.4571	X 6 CrNiMoTi 17 12 2
1.4404	G-X 2 CrNiMo 18 10	1.4573	X 10 CrNiMoTi 18 12
1.4406	X 2 CrNiMoN 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2
1.4429	X 2 CrNiMo 17 13 3	1.4581	G-X 5 CrNiMoNb 18 10
1.4435	X 2 CrNiMo 18 14 3	1.4583	X 10 CrNiMoNb 18 12
1.4401	X 5 CrNiMo 17 12 2	1.4420	X 5 CrNiMo 18 11
1.4408	G-X 6 CrNiMo 18 10	1.4436	X 5 CrNiMo 17 13 3

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°	untreated -60°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	≥320	
Tensile strength R <sub>m</sub>	MPa	≥510	
Elongation A <sub>5</sub>	[%]	≥25	
Impact strength A <sub>v</sub>	[J]	LNB	LNB

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni
0,04	1,2	2,0	17,0-20,0	2,5-3,0	10,0-13,0

### Structure

Austenite with deltaferrite

### Redrying

2h at +350°C. Not Essentially Required.

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
1,50	250	30 - 40	5,4	463	2,5
2,00	300	40 - 60	11,7	342	4,0
2,50	300	60 - 90	18,5	216	4,0
3,25	350	80 - 110	36,0	139	5,0
4,00	350	100 - 150	55,0	90	5,0
5,00	450	150 - 190	111,0	54	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/ ~

## MT-316 LV

## 1.4430

Rutile coated electrode for vertical down welding of stainless austenitic steels. Weld metal of austenitic chrome nickel molybdenum – steel, very low carbon content, suitable for working temperatures up to +400°C, cold – tough down to – 120°C.

### Standard designation

Material No.	~1.4430
AWS/ASME SFA-5.4	~ E 316 L - 17
EN ISO 3581-A	E 19 12 3 LR 11

### Main base metal

Stainless austenitic chrome nickel molybdenum – steel/cast steel e.g.

1.4404	X 2 CrNiMo 17 13 2	1.4571	X 6 CrNiMoTi 17 12 2
1.4404	G-X 2 CrNiMo 18 10	1.4573	X 10 CrNiMoTi 18 12
1.4406	X 2 CrNiMoN 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2
1.4429	X 2 CrNiMoN 17 13 3	1.4581	G-X 5 CrNiMoNb 18 10
1.4435	X 2 CrNiMo 18 14 3	1.4583	X 10 CrNiMoNb 18 12
1.4408	G-X 6 CrNiMo 18 10	1.4436	X 5 CrNiMo 17 13 3
1.4401	X 5 CrNiMo 17 12 2	1.4420	X 5 CrNiMo 18 11

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	360
Tensile strength	R <sub>m</sub>	MPa	550
Elongation	A <sub>5</sub>	[%]	38
Impact strength	A <sub>v</sub>	[J]	75

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni
0,02	0,9	1,0	18,0	2,7	11,5

### Structure

Austenite with deltaferrite

### Redrying

2h at +350°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 70	16,2	247	4,0
3,25	350	80 - 110	32,0	156	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF, PG

### Current/Polarity

= +/ ~

## MT-316 HL

~1.4430

Rutile coated high deposition electrode giving 160 % recovery, designed for welding stainless austenitic steels. Weld metal of austenitic chrome nickel molybdenum – steel, very low carbon content, suitable for working temperatures up to +400°C.

### Standard designation

Material No.	~1.4430
AWS/ASME SFA-5.4	~ E 316 L - 17
EN ISO 3581-A	E 19 12 3 LR 53

### Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel e.g.

1.4404	X 2 CrNiMo 17 13 2	1.4571	X 6 CrNiMoTi 17 12 2
1.4404	G-X 2 CrNiMo 18 10	1.4573	X 10 CrNiMoTi 18 12
1.4406	X 2 CrNiMoN 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2
1.4429	X 2 CrNiMoN 17 13 3	1.4581	G-X 5 CrNiMoNb 18 10
1.4435	X 2 CrNiMo 18 14 3	1.4583	X 10 CrNiMoNb 18 12
1.4408	G-X 6 CrNiMo 18 10	1.4436	X 5 CrNiMo 17 13 3
1.4401	X 5 CrNiMo 17 12 2	1.4420	X 5 CrNiMo 18 11

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	350
1,0%-yield strength	R <sub>p1,0</sub>	MPa	370
Tensile strength	R <sub>m</sub>	MPa	550
Elongation	A <sub>5</sub>	[%]	35
Impact strength	A <sub>v</sub>	[J]	70

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni
<0,03	0,9	0,9	18,3	2,7	12,0

### Structure

Austenite with deltaferrite

### Redrying

2h at +350°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	50 - 70	16,8	238	4,0
2,50	350	70 - 90	30,7	163	5,0
3,25	350	80 - 110	51,9	96	5,0
4,00	450	135 - 175	101,0	59	6,0

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity

= +/ ~



## MT-318

## 1.4576

**MIG/TIG welding wire of stabilized austenitic chrome nickel molybdenum – steel, for welding stainless austenitic steels suitable for working temperatures up to +400°C.**

### Standard designation

Material No.	1.4576
AWS/ASME SFA-5.9	~ER 318
EN ISO 14343-A	G/W 19 12 3 NbSi

### Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel e.g.

1.4571	X 6 CrNiMoTi 17 12 2	1.4404	X 2 CrNiMo 17 13 2
1.4573	X 10 CrNiMoTi 18 12	1.4404	G-X 2 CrNiMo 18 10
1.4580	X 6 CrNiMoNb 17 12 2	1.4435	X 2 CrNiMo 18 14 3
1.4581	G-X 5 CrNiMoNb 18 10	1.4401	X 5 CrNiMo 17 12 2
1.4583	X 10 CrNiMoNb 18 12	1.4408	G-X 6 CrNiMo 18 10
1.4420	X 5 CrNiMo 18 11	1.4436	X 5 CrNiMo 17 13 3

### Mechanical properties of all – weld – metal (typical values)

Welding process			TIG I1	MIG M 11	
Gas shield			untreated	untreated	
Thermal treatment			+20°C	+20°C	-196°C
Test temperature		[°C]			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥295	≥295	
Tensile strength	R <sub>m</sub>	MPa	≥550	≥550	
Elongation	A <sub>5</sub>	[%]	≥25	≥25	
Impact strength	A <sub>v</sub>	[J]	LNB	LNB	LNB

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni	(Nb+Ta)
0,08	0,65-1,2	1,0-2,5	18,0-20,0	2,5-3,0	11,0-14,0	10x % C max. 1,0

### Structure

Austenite with deltaferrite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11, M 12 and M 21

### Approvals

TÜV, DB, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,00	1000	10,0
1,20	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wires

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF, PG

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF, PE

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

# MT-318

# 1.4576

Rutile coated electrode for welding stainless austenitic steels, weld metal of stabilized chrome nickel molybdenum – steel, suitable for working temperatures up to +400°C, cold – tough down to –60°C.

## Standard designation

Material No.	1.4576
AWS/ASME SFA-5.4	E 318 - 16
EN ISO 3581-A	E 19 12 3 Nb R 12

## Main base metals

Stainless austenitic chrome nickel molybdenum – steel/cast steel e.g.

1.4571	X 6 CrNiMoTi 17 12 2	1.4404	X 2 CrNiMo 17 13 2
1.4573	X 10 CrNiMoTi 18 12	1.4404	G-X 2 CrNiMo 18 10
1.4580	X 6 CrNiMoNb 17 12 2	1.4436	X 5 CrNiMo 17 13 3
1.4581	G-X 5 CrNiMoNb 18 10	1.4401	X 5 CrNiMo 17 12 2
1.4583	X 10 CrNiMoNb 18 12	1.4408	G-X 6 CrNiMo 18 10
1.4420	X 5 CrNiMo 18 11		

## Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°	untreated -60°C
Test temperature				
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥350	
Tensile strength	R <sub>m</sub>	MPa	≥550	
Elongation	A <sub>5</sub>	[%]	≥25	
Impact strength	A <sub>v</sub>	[J]	LNB	LNB

## Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni	(Nb+Ta)
0,08	1,2	2,0	17,0-20,0	2,5-3,0	10,0-13,0	8 x % C max 1,1

## Structure

Austenite with deltaferrite

## Redrying

2h at +300°C. Not Essentially Required.

## Approvals

TÜV, DB, CE

## Diameters, welding current, Unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
1,50	250	30 - 40	5,4	463	2,5
2,00	300	40 - 60	11,7	342	4,0
2,50	300	60 - 90	18,5	216	4,0
3,25	350	80 - 110	36,0	140	5,0
4,00	350	100 - 150	54,3	92	5,0
5,00	450	150 - 190	108,5	55	6,0

## Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

## Current/Polarity

= +/ ~

## MT-4820

## 1.4820

**Ferritic – austenitic chrome nickel steel MIG/TIG wire for welding heat – resistant steels. Weld metal non – scaling up to +1100°C.**

### Standard designation

EN ISO 14343-A	G 25 4
Material No.	1.4820

### Main base metals

Heat – proof and non – scaling ferritic – austenitic steels e.g.

1.4713	X 10 CrAl 7	1.4821	X 20 CrNiSi 25 4
1.4724	X 10 CrAl 13	1.4822	G-X40 CrNi 24 5
1.4742	X 10 CrAl 18	1.4823	G-X40 CrNiSi 27 4
1.4762	X 10 CrAl 24		

### Mechanical properties of all – weld – metal

(Typical values)

Gas shield		[°C]	M 11
Thermal treatment			untreated
Test temperature			+20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa	450
Tensile strength	R <sub>m</sub>	MPa	650
Elongation	A <sub>5</sub>	[%]	15
Impact strength	A <sub>v</sub>	[J]	50

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,10	0,6	1,0-2,5	24,0-27,0	4,0-6,0

### Structure

Ferrite-austenite

### Gas types applicable MIG

M 11

### MIG welding wires

Diameter                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity MIG

= +

## MT-4820

## 1.4820

Rutile coated electrode for welding heat resistant steels.

Weld metal of ferritic – austenitic chrome nickel steel;

Non – scaling up to +1100°C.

### Standard designation

EN ISO 3581-A	E 25 4 R 32
Material No.	1.4820

### Main base metals

Heat – proof and non – scaling ferritic – austenitic steels e.g.

1.4713	X 10 CrAl 7	1.4821	X 20 CrNiSi 25 4
1.4724	X 10 CrAl 13	1.4822	G-X40 CrNi 24 5
1.4742	X 10 CrAl 18	1.4823	G-X40 CrNiSi 27 4
1.4762	X 10 CrAl 24		

### Mechanical properties of all – weld – metal (Typical values)

Thermal treatment		[°C]	untreated +20°	untreated +600°C
Test temperature				
0,2%-yield strength	R <sub>p0,2</sub>	MPa	440	150
Tensile strength	R <sub>m</sub>	MPa	640	230
Elongation	A <sub>5</sub>	[%]	20	35
Impact strength	A <sub>v</sub>	[J]	30	

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,06	0,7	2,5	24,0-27,0	4,0-6,0

### Structure

Ferrite-austenite

### Redrying

1h at +350°C. Not Essentially Required.

### Diameters, welding current, Unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 70	16,8	238	4,0
3,25	350	70 - 100	35,2	142	5,0
4,00	350	90 - 140	51,5	97	5,0

### Welding positions acc.to DIN EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +

## MT-309

## 1.4829

**TIG/MIG welding wire of austenitic chrome nickel steel for welding heat resistant steels. Weld metal non – scaling up to +800°C.**

### Standard designation

Material No.	1.4829
AWS/ASME SFA-5.9	ER 309 Si
EN ISO14343-A	G/W 22 12H

### Main fields of application

High temperature steels, cladding and buffer layer welding.

### Main base metals

Heat – proof and non – scaling steels e.g.

1.4710	G-X 30 CrSi 6	1.4825	G-X 25 CrNiSi 18 9
1.4729	G-X 40 CrSi 13	1.4828/1.2780	X 15 CrNiSi 20 12
1.4740	G-X 40 CrSi 17	1.4878	X 12 CrNiTi 18 9

### Mechanical properties of all – weld – metal (typical values)

Gas shield	Thermal treatment	Test temperature	[°C]	TIG I1 untreated +20°	MIG M11 untreated +20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa		400	380
Tensile strength	R <sub>m</sub>	MPa		600	600
Elongation	A <sub>5</sub>	[%]		35	35
Impact strength	A <sub>v</sub>	[J]		65	65

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,08	0,9	1,0-2,50	23,0-25,0	12,0-14,0

### Structure

Austenite with increased delta ferrite standard

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11 and M 23

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wires

Diameter                      0,8mm                      1,0mm                      1,2mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF, PE

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- 309

~1.4829

**Rutil coated electrode for welding heat resistant steels  
weld metal non – scaling up to +800°C.**

### Standard designation

Material No.	~ 1.4829
AWS / ASME SFA-5.4	E 309 H -16
EN ISO 3581-A	E 22 12 R 32

### Main fields of application

High temperature steels, cladding and buffer layer welding.

### Main base metals

Heat – proof and non – scaling steels e.g.

1.4710	G-X 30 CrSi 6	1.4825	G-X 25 CrNiSi 18 9
1.4729	G-X 40 CrSi 13	1.2780	X 15 CrNiSi 20 12
1.4740	G-X 40 CrSi 17	1.4828	X 15 CrNiSi 20 12
1.4878	X 12 CrNiTi 18 9		

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature		[°C]	untreated +20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa	320
Tensile strength	R <sub>m</sub>	MPa	550
Elongation	A <sub>5</sub>	[%]	30
Impact strength	A <sub>v</sub>	[J]	55

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,11	0,9	0,5-2,50	22,0-25,0	12,0-14,0

### Structure

Austenite with increased delta ferrite standard

### Redrying

1h at +350°C. Not Essentially Required.

### Diameters, welding current, Unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 70	18,6	215	4,0
3,25	350	70 - 100	36,8	136	5,0
4,00	350	90 - 140	55,0	91	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~

# MT-309 L

# 1.4332

**TIG/MIG welding wire of austenitic chrome nickel steel, very low carbon content, for cladding on stainless and dissimilar steels.**

**Weld metal suitable for working temperatures of up to +300°C**

**Standard designation**

Material No.	1.4332
AWS/ASME SFA-5.9	~ER 309 LSi
EN ISO 14343-A	G/W 23 12 LSi

**Main fields of application**

Dissimilar steels (joint welds of austenitic to ferritic steels) cladding and buffer layer welding.

**Main base metals**

Heat – proof and non – scaling steels e.g.

1.4710	G-X 30 CrSi 6	1.4825	G-X 25 CrNiSi 18 9
1.4729	G-X 40 CrSi 13	1.2780	X 15 CrNiSi 20 12
1.4740	G-X 40 CrSi 17	1.4828	X 15 CrNiTi 20-12

**Mechanical properties of all – weld – metal (typical values)**

Welding process		[°C]	TIG	MIG
Gas shield			I1	M11
Thermal treatment		[°C]	untreated	untreated
Test temperature			+20°	+20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥295	≥295
Tensile strength	R <sub>m</sub>	MPa	≥510	≥510
Elongation	A <sub>5</sub>	[%]	≥25	≥25
Impact strength	A <sub>v</sub>	[J]	LNB	LNB

**Average chemical composition of all - weld – metal (%)**

C	Si	Mn	Cr	Ni
0,03	0,65-1,20	1,0-2,50	22,0-25,0	11,0-14,0

**Structure**

Austenite with increased delta ferrite standard

**Gas types applicable TIG  
Gas types applicable MIG**

I1  
M 11 and M 23

**Approvals**

TÜV,CE

**TIG rod diameters, unit weights**

Diameter [mm]	Length [mm]	Kg per box
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

**MIG welding wires**

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

**Welding positions MIG acc.to EN ISO 6947**

PA, PB, PF

**Welding positions TIG acc.to EN ISO 6947**

PA, PB, PC, PF, PE

**Current/Polarity TIG**

= -

**Current/Polarity MIG**

= +

## MT-309 L

## 1.4332

Rutile coated electrode for welding on stainless and dissimilar steels and cladding ferritic steels. Weld metal of austenitic chrome – nickel steel, very low carbon content, suitable for working temperatures up to +350°C, creep resistant

### Standard designation

Material No.	1.4332
AWS/ASME SFA-5.4	E 309 L -16
EN ISO 3581-A	E 23 12 LR 32

### Main fields of application

Dissimilar steels (joint welding of austenitic to ferritic steels) cladding and buffer layer welding.

### Main base metals

Heat – proof and non – scaling steels e.g.

1.4710	G-X 30 CrSi 6	1.4825	G-X 25 CrNiSi 18 9
1.4729	G-X 40 CrSi 13	1.2780	X 15 CrNiSi 20 12
1.4740	G-X 40 CrSi 17	1.4828	X 15 CrNiSi 20 12
1.4878	X 12 CrNiTi 18 9		

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
0,2%-yield strength	R <sub>p0,2</sub>	[MPa]	320
Tensile strength	R <sub>m</sub>	MPa	540
Elongation	A <sub>5</sub>	[%]	35
Impact strength	A <sub>v</sub>	[J]	65

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,02	0,9	0,9	23	12

### Structure

Austenite with increased content of delta ferrite

### Redrying

1h at +300°C. Not Essentially Required.

### Diameters, welding current,

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300			348	4,0
2,50	300	50 - 70	18,6	215	4,0
3,25	350	75 - 100	36,8	136	5,0
4,00	350	90 - 120	55,0	91	5,0

### Unit weights

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~



## MT-310

## 1.4842

**TIG/MIG welding wire of fully austenitic chrome nickel steel for welding heat resistant steels. Weld metal non – scaling up to +1200°C.**

### Standard designation

Material No.	1.4842
AWS/ASME SFA-5.9	ER 310
EN 12072	G/W 25 20

### Main base metals

Heat-resistant and non-scaling steels, e.g.

1.4832	G-X 25 CrNiSi 20 14	1.4841	X 15 CrNiSi 25 20
1.4837	G-X 40 CrNiSi 25 12	1.4845	X 12 CrNi 25 21
1.4840	G-X 15 CrNi 25 20		

### Mechanical properties of all – weld – metal (typical values)

Welding process			TIG	MIG
Gas shield			I1	M11
Thermal treatment			untreated	untreated
Test temperature		[°C]	+20°	+20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	315	315
Tensile strength	R <sub>m</sub>	MPa	490	490
Elongation	A <sub>5</sub>	[%]	25	25
Impact strength	A <sub>v</sub>	[J]	80	80

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,12	0,5	1,0-2,50	25,0-28,0	20,0-22,5

### Structure

Fully austenitic

### Gas types applicable TIG Gas types applicable MIG

I1  
M 13

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wires

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PF, PE

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-310

## 1.4842

Rutile coated electrode for welding heat resistant steels. Weld metal of fully austenitic chrome nickel steel. Non-scaling up to +1200°C.

### Standard designation

Material No.	1.4842
AWS/ASME SFA-5.4	E 310-16
EN ISO 3581-A	E 25 20 R 12

### Main base metals

Heat-resistant and non-scaling steels, e.g.

1.4832	G-X 25 CrNiSi 20 14	1.4841	X 15 CrNiSi 25 20
1.4837	G-X 40 CrNiSi 25 12	1.4845	X 12 CrNi 25 21
1.4840	G-X 15 CrNi 25 20	1.4846	X 40 CrNi 25 21

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	350
Tensile strength	R <sub>m</sub>	MPa	600
Elongation	A <sub>5</sub>	[%]	30
Impact strength	A <sub>v</sub>	[J]	60

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,10	0,5	1,0-5,0	23,0-27,0	18,0-22,0

### Structure

Fully austenitic

### Redrying

2h at +300°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	70 - 90	19,0	210	4,0
3,25	350	100 - 120	36,4	137	5,0
4,00	350	120 - 140	54,2	92	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~

## MT-310 B

~1.4842

Basic coated electrode for welding heat resistant steels. Weld metal of fully austenitic chrome nickel steel. Non-scaling up to +1200°C.

### Standard designation

Material No.	~1.4842
EN ISO 3581-A	E 25 20 B 22
AWS/ASME SFA-5.4	E 310-15

### Main base metals

Heat-resistant and non-scaling steels, e.g.

1.4832	G-X 25 CrNiSi 20 14	1.4841	X 15 CrNiSi 25 20
1.4837	G-X 40 CrNiSi 25 12	1.4845	X 12 CrNi 25 21
1.4840	G-X 15 CrNi 25 20	1.4846	X 40 CrNi 25 21

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	350
Tensile strength	R <sub>m</sub>	MPa	600
Elongation	A <sub>5</sub>	[%]	30
Impact strength	A <sub>v</sub>	[J]	70

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Ni
0,12	0,5	3	25,5	20,5

### Structure

Fully austenitic

### Redrying

2h at +320°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 70	19,0	210	4,0
3,25	350	70 - 90	36,4	137	5,0
4,00	350	100 - 130	54,2	92	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +

# MT-4462

# 1.4462

**TIG/MIG welding wire of nitrogenous ferritic-austenitic chrome-nickel-molybdenum-steel for welding stainless ferritic-austenitic compound steels suitable for working temperatures of up to +250°C.**

**Standard designation**

Material No.	1.4462
AWS/ASME SFA-5.9	~ER 2209
EN ISO 14343-A	G/W 22 9 3 NL

**Main base metals**

Stainless ferritic austenitic steel/cast steel, e.g.

1.4347	G-X 8 CrNi 26 7	1.4462	X 2 CrNiMoN 22 5
1.4417	X 2 CrNiMoSi 19 5	1.4582	X 4 CrNiMoNb 25 7
1.4460	X 8 CrNiMo 27 5		

As well as joint welding to mild steels, low-alloyed and stainless steels/cast steels.

**Mechanical properties of all – weld – metal (typical values)**

Welding process			TIG I1	MIG M11
Gas shield			untreated	untreated
Thermal treatment			+20°	+20°C
Test temperature		[°C]		
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥480	≥480
Tensile strength	R <sub>m</sub>	MPa	≥680	≥680
Elongation	A <sub>5</sub>	[%]	≥25	≥25
Impact strength	A <sub>v</sub>	[J]	LNB	LNB

**Average chemical composition of all - weld – metal (%)**

C	Si	Mn	Cr	Mo	Ni	N
0,03	1,0	2,5	21,0-24,0	2,5-4,0	7,0-10,0	0,10-0,20

**Structure**

Ferritic-austenitic

**Gas types applicable TIG  
Gas types applicable MIG**

I1  
M 12

**Approvals**

TÜV, DB, CE

**TIG rod diameters, unit weights**

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

**MIG welding wire**

Diameter                      0,8mm                      1,0mm                      1,2mm

**Welding positions MIG acc.to EN ISO 6947  
Welding positions TIG acc.to EN ISO 6947**

PA, PB, PF  
PA, PB, PC, PF

**Current/Polarity TIG**

= -

**Current/Polarity MIG**

= +

## MT-4462

## 1.4462

**Rutile coated electrode for welding stainless ferritic-austenitic steels. Weld metal of nitrogenous austenitic chrome-nickel-molybdenum-steel with increased ferrite standard and very low carbon content, suitable for working temperatures of up to +250°C.**

### Standard designation

Material No.	1.4462
AWS/ASME SFA-5.4	E 2209
EN ISO 3581-A	E 22 9 3 LR 32

### Main base metals

Stainless ferritic austenitic steel/cast steel, e.g.

1.4347	G-X 8 CrNi 26 7	1.4462	X 2 CrNiMoN 22 5
1.4417	X 2 CrNiMoSi 19 5	1.4463	G-X 6 CrNiMo 24 8 2
1.4460	X 8 CrNiMo 27 5	1.4582	X 4 CrNiMoNb 25 7

As well as joint welding to mild steels, low-alloyed and stainless steels/cast steels.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated
Test temperature			+20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa	550
Tensile strength	R <sub>m</sub>	MPa	750
Elongation	A <sub>5</sub>	[%]	35
Impact strength	A <sub>v</sub>	[J]	70

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni	N
0,02	0,9	0,5-2,0	21,5-23,5	2,5-3,5	7,5-10,5	0,08-0,20

### Structure

Ferrite-austenite

### Redrying

2h at +200°C-+250°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 70	18,5	216	4,0
3,25	350	70 - 100	37,4	134	5,0
4,00	350	90 - 140	56,3	89	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~

## MT-904 L

## 1.4519

TIG/MIG welding wire of fully austenitic, copper-containing chrome-nickel-molybdenum-steel with high molybdenum and very low carbon content, for welding high-alloy steels which are strongly corrosion resistant when exposed to reducing media. Weld metal suitable for temperatures up to +350°C.

### Standard designation

Material No.	1.4519
AWS/ASME SFA-5.9	ER 385
EN ISO 14343-A	G/W 20 25 5 Cu L

### Main base metals

Exceptionally corrosion-proof steels/cast steels e.g.

1.4500	G-X 7 NiCrMoCuNb 25 20	1.4536	G-X 2NiCrMoCuN 25 20
1.4505	X 5 NiCrMoCuNb 20 18	1.4539	X 2 NiCrMoCu 25 20 5
1.4506	X 5 NiCrMoCuTi 20 18	1.4585	G-X 7 NiCrMoCuNb 18 18

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I1 untreated +20° - 196°C		MIG M12 untreated +20°C -196°C	
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥320		≥320	
Tensile strength	R <sub>m</sub>	MPa	≥510		≥510	
Elongation	A <sub>5</sub>	[%]	≥25		≥25	
Impact strength	A <sub>v</sub>	[J]	LNB	LNB	LNB	LNB

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni	Cu
0,03	1,0	1,0-4,0	19,0-22,0	4,0-6,0	24,0-27,0	1,0-2,0

### Structure

Fully austenitic

### Approvals

TÜV, DB, CE

### Gas types applicable TIG Gas types applicable MIG

I1  
M 12

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-904 L

## 1.4519

Rutile coated electrode for welding of fully austenitic, copper-containing chrome-nickel-moly-steel with high molybdenum and very low carbon content, for welding high-alloy steels which are strongly corrosion resistant when exposed to reducing media. Weld metal suitable for temperatures up to +400°C.

### Standard designation

Material No.	1.4519
AWS/ASME SFA-5.4	E 385-17
EN ISO 3581-A	E 20 25 5 Cu N LR 53

### Main base metals

Exceptionally corrosion resistant steel//cast steel e.g.

1.4500	G-X 7 NiCrMoCuNb 25 20	1.4536	G-X 2NiCrMoCuN 25 20
1.4505	X 5 NiCrMoCuNb 20 18	1.4539	X 2 NiCrMoCu 25 20 5
1.4506	X 5 NiCrMoCuTi 20 18	1.4585	G-X 7 NiCrMoCuNb 18 18

As well as welded joints to mild, low-alloyed and stainless steels/cast steel.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa	450
Tensile strength	R <sub>m</sub>	MPa	600
Elongation	A <sub>5</sub>	[%]	35
Impact strength	A <sub>v</sub>	[J]	70

### Average chemical composition of all - weld – metal (%)

C	Si	Mn	Cr	Mo	Ni	Cu
0,025	0,8	1,0-4,0	19,0-22,0	4,0-7,0	24,0-27,0	1,0-2,0

### Structure

Fully austenitic

### Redrying

1h at +350°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	60 - 80	30,5	131	4,0
3,25	350	80 -110	51,6	97	5,0
4,00	350	115 -140	78,2	64	5,0
5,00	450	130 -180	157,0	38	6,0

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity

= +/~

## MT-307

## 1.4370

MIG/TIG welding wire of austenitic chrome nickel manganese steel, very low carbon content, for welding dissimilar steels suitable for working temperatures of up to +300°C, cold-tough down to -120°C.

### Standard designation

Material No.	1.4370
AWS/ASME SFA-5.9	ER 307
EN ISO 14343-A	G/W 18 8 Mn

### Main base metals

Dissimilar steels (joint welding of austenitic to ferritic steels), steels with high carbon content and difficult weldable steels, high manganese steel, e.g. X 120 Mn 12 (1.3401); buffer layers for hardfacing; cold-tough nickel steels, e.g. 10 Ni 14 (1.5637); 12 Ni 19 (1.5680).

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I1 untreated		MIG M 11 untreated	
			+20°C	-120°C	+20°C	-120°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥295		≥295	
Tensile strength	R <sub>m</sub>	MPa	≥510		≥510	
Elongation	A <sub>5</sub>	[%]	≥25		≥25	
Impact strength	A <sub>v</sub>	[J]	LNB	LNB	LNB	LNB

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0,2	1,2	5,0-8,0	17,0-20,0	7,0-10,0

### Structure

Austenite, possibly with small portion of delta ferrite

### Gas types applicable TIG Gas types applicable MIG

I1  
M 12 until M 21

### Approvals

TÜV, DB, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm 1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF, PC, PG

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +



## MT-307

## 1.4370

Rutile coated electrode for joining dissimilar steels and for clad welding. Weld-metal of austenitic chrome nickel manganese steel suitable for working temperatures of up to +300°C.

### Standard designation

Material No.	1.4370
AWS/ASME SFA-5.4	E 307 - 16
EN ISO 3581-A	E 18 8 Mn R 12

### Main base metals

Dissimilar steels (welded joints between austenitic and ferritic steels), steels with high carbon content and difficult weldable steels, high manganese steel, e.g. X 120 Mn 12 (1.3401); buffer layers for hardfacing.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa	≥350
Tensile strength	R <sub>m</sub>	MPa	≥500
Elongation	A <sub>5</sub>	[%]	≥25
Impact strength	A <sub>v</sub>	[J]	LNB

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0,20	1,2	4,5-7,5	17,0-20,0	7,0-10,0

### Structure

Austenite, possibly with small portions of delta ferrite.

### Redrying

2h at +300°C. Not Essentially Required.

### Approvals

-

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	70 - 90	18,3	219	4,0
3,25	350	90 - 120	33,9	148	5,0
4,00	350	100 - 140	50,8	98	5,0
5,00	350	150 - 190	79,3	63	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity

= +/~

## MT-307 B

## 1.4370

**Basic coated electrode for joining dissimilar steels as well as cladding. Weld metal of austenitic chrome nickel manganese steel, suitable for working temperatures of up to +300°C, cold-tough down to -120°C.**

### Standard designation

Material No.	1.4370
EN ISO 14700	E Fe 10
AWS/ASME SFA-5.4	E 307 - 15
EN ISO 3581-A	E 18 8 Mn B 22

### Main base metals

Dissimilar steels (joining austenitic to ferritic steels); steels with high carbon content and difficult weldable steels, high manganese steel, e.g. X 120 Mn 12 (1.3401); buffer layers for hardfacing, cold-tough steel, e.g. 10 Ni 14 (1.5637), 12 Ni 19 (1.5680).

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated +20°C	untreated -120°C
Test temperature		[°C]		
0,2%-yield strength	R <sub>p0,2</sub>	MPa	350	
Tensile strength	R <sub>m</sub>	MPa	600	
Elongation	A <sub>5</sub>	[%]	40	
Impact strength	A <sub>v</sub>	[J]	60	35

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0,10	0,5	4,5-7,5	17,0-20,0	7,0-10,0

### Structure

Austenite, possibly with small portions of delta ferrite

### Redrying

2h at +320°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 70	16,1	249	4,0
3,25	350	80 - 100	31,0	161	5,0
4,00	350	100 - 130	46,2	108	5,0
5,00	450	130 - 160	93,0	65	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF, PE

### Current/Polarity

= + ~

## MT-307 HL

~1.4370

Rutile coated high deposition electrode giving 160 % recovery.

Designed for joining dissimilar steels as well as cladding.

Welding deposit of austenitic chrome-nickel-manganese steel, suitable for working temperatures of up to +300°C.

### Standard designation

Material No.	1.4370
EN ISO 14700	E Fe 10
AWS/ASME SFA-5.4	E 307 - 26
EN ISO 3581-A	E 18 8 Mn R 53

### Main base metals

Dissimilar steels (joint welding of austenitic to ferritic steels); steels with high carbon content and difficult weldable steels, high manganese steel e.g. X 120 Mn 12 (1.3401), buffer layers for hardfacing.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	[MPa]	350
Tensile strength	R <sub>m</sub>	[MPa]	600
Elongation	A <sub>5</sub>	[%]	40
Impact strength	A <sub>v</sub>	[J]	60

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0,10	0,5	4,5-7,5	17,0-20,0	7,0-10,0

### Structure

Austenite, possibly with small portions of delta ferrite

### Redrying

2h at +320°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	80 - 110			5,0
3,25	450	110 - 150	69,0	87	6,0
4,00	450	140 - 200	103,0	58	6,0
5,00	450	210 - 260	163,3	37	6,0

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity

= +/ ~

## MT-312

## 1.4337

MIG/TIG welding wire of ferritic-austenitic chrome-nickel steel suitable for joint-welding dissimilar steels and for resurfacing non-scaling up to +1000°C.

### Standard designation

Material No.	1.4337
AWS/ASME SFA-5.9	ER 312
EN ISO 14343-A	G/W 29 9

### Main base metals

Non-corrosive similar steels and cast-steels, e.g. 1.4762 (X 10 CrAl 24), 1.4085 (G-X70 Cr 29); difficult weldable steel, e.g. highly solid construction steel, high manganese steel and joint with to high-alloy steels; repair welding and wear resistant hardfacing.

### Mechanical properties of all – weld – metal

(typical values)

Gas shield Thermal treatment Test temperature		[°C]	M 11 untreated +20°
0,2%-yield strength R <sub>p0,2</sub>		MPa	560
Tensile strength R <sub>m</sub>		MPa	740
Elongation A <sub>5</sub>		[%]	25
Lin. Thermal expansion Coefficient (20-400°C)		[1/K]	15x10 <sup>-6</sup>

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0,12	0,4	1,0-2,5	28,0-32,0	8,0-12,0

### Structure

ferritic-austenitic

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire:

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF, PC, PG  
PA, PB, PC, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-312

## 1.4337

Rutile coated electrode for joining dissimilar steels and for hardfacing. Welding deposit consisting of ferritic-austenitic chrome-nickel-steel; non-scaling up to +1000°C.

### Standard designation

Material No.	1.4337
AWS/ASME SFA-5.4	ER 312 - 16
EN ISO 3581-A	E 29 9 R 12

### Main fields of application

Non-corrosive steels of similar kind and cast-steel, e.g. 1.4762 (X 10 CrAl 24), 1.4085 (G-X70 Cr 29); difficultly weldable steel, e.g. heavy sectional construction steel, high manganese steel and welding joints with to high-alloy steel; repair welding and wear resistant hardfacing.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°
0,2%-yield strength $R_{p0,2}$	MPa	450
Tensile strength $R_m$	MPa	650
Elongation $A_5$	[%]	15
Lin.thermal expansion Coefficient (20-400°C)	[1/K]	$15 \times 10^{-6}$

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0,15	1,20	2,50	27,0-31,0	8,0-12,0

### Structure

ferritic-austenitic

### Redrying

2h at +300°C. Not Essentially Required.

### Approvals

DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
1,60	250	30-50	6,5	615	4,0
2,00	250	40 - 50	9,2	270	2,5
2,50	300	60 - 70	18,0	221	4,0
3,25	350	70 - 100	43,8	114	5,0
4,00	350	90 - 140	51,5	97	5,0
5,00	350	130 - 170	81,9	61	5,0

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity

= +/ ~

## MT-312 HL

## 1.4337

Rutile coated high deposition electrode giving 170 % recovery, designed for joining dissimilar steels and for resurfacing. The welding deposit consists of ferritic-austenitic chrome nickel steel, non-scaling up to +1000°C

### Standard designation

Material No.	1.4337
AWS/ASME SFA-5.4	ER 312 - 16
EN ISO 3581-A	E 29 9 MPR 23 120

### Main fields of application

Non-corrosive steels of similar composition and cast-steel, e.g. 1.4762 (X 10 CrAl 24), 1.4085 (G-X70 Cr 29); difficultly weldable steels, heavy sectional construction steel, high manganese steel and welded joints with high-alloy steel; repair welds and wear resistant hardfacing.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa	450
Tensile strength	R <sub>m</sub>	MPa	650
Elongation	A <sub>5</sub>	[%]	20
Lin. Thermal expansion Coefficient (20-400°C)		[1/K]	15x10 <sup>-6</sup>

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Ni
0,12	1,0	0,5-2,5	28,0-32,0	8,0-10,5

### Structure

ferritic-austenitic

### Redrying

2h at +320°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	50 - 80	16,9	237	4,0
2,50	350	70 - 120	32,0	125	4,0
3,25	350	110 - 160	54,0	93	5,0
4,00	350	135 - 175	105,0	57	6,0
5,00	450	210 - 260	161,0	37	6,0

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity

= +/ ~

## MT-309 Mo

## 1.4459

Rutile coated electrode for welding dissimilar steels and cladding stainless steels. Welding deposit of austenitic chrome nickel molybdenum-steel, very low carbon content, suitable for working temperatures up to +350°C.

### Standard designation

Material No.	1.4459
AWS/ASME SFA-5.4	E 309 Mo L - 16
EN ISO 3581-A	E 23 12 2 LR 32

### Main fields of application

Dissimilar steels (joining austenitic to ferritic steels); cladding and buffer layer welding.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa	350
Tensile strength	R <sub>m</sub>	MPa	550
Elongation	A <sub>5</sub>	[%]	25
Impact strength	A <sub>v</sub>	[J]	LNB

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo	Ni
0,04	1,2	2,5	22,0-25,0	2,0-3,0	11,0-14,0

### Structure

Austenite with increased portion of delta ferrite

### Redrying

2h at +300°C. Not Essentially Required.

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	40 - 60	11,6	345	4,0
2,50	300	60 - 80	18,7	214	4,0
3,25	350	80 - 110	36,8	136	5,0
4,00	350	110 - 150	55,0	91	5,0
5,00	450	150 - 190	110,8	54	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity

= +/ ~

## MT- Superduplex

**~1.4410**

### Standard designation

EN ISO 14343-A	G/W 25 9 4 NL
Material No.	~1.4410
AWS/ASME SFA-5.9	~ER 25 9 4

### Main fields of application

1.4410	X 2 CrNiMoN 25 7 4	1.4469	X 2 CrNiMoN 26 7 4
1.4467	X 2 CrMnNiMoN 26 5 4	1.4501	X 2 CrNiMoCuWN 25 7 4
1.4468	GX 2 CrNiMoN 25 6 3	1.4515	GX 3 CrNiMoCuN 26 6 3
1.4507	X 2 CrNiMoCuN 25 6 3	1.4508	GX2CrNiMoCuWN25-8-4

### Mechanical properties of all – weld – metal

(typical values)

Gas shield	Thermal treatment	Test temperature	[°C]	M 12 untreated +20°
0,2%-yield strength	R <sub>p0,2</sub>	MPa		670
Tensile strength	R <sub>m</sub>	MPa		850
Elongation	A <sub>5</sub>	[%]		25
Impact strength	A <sub>v</sub>	(J)		120

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo	Ni	N	Cu
0,02	0,6	2,5	24,0-27,0	2,5-4,5	8,0-10,5	0,20-0,30	1,5

### Gas types applicable TIG Gas types applicable MIG

I1  
M 12, M 13

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire:

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF, PC, PG  
PA, PB, PC, PF

### Current/Polarity WIG

= -

### Current/Polarity TIG

= +



## Aluminium and Titanium

**2**

Filler metals for aluminium welding

Filler metals for titanium welding

Filler metals for magnesium welding

<i>MTC-Name</i>		<i>Material No.</i>	<i>AWS</i>	<i>Page</i>
MIG/TIG	MT-AI 99,5	3.0259	ER 1100	2.02
MIG/TIG	MT-AI 99,5 Ti	3.0805	ER 1450 Ti	2.03
MIG/TIG	MT-AIMg 3	3.3536	ER 5754	2.04
MIG/TIG	MT-AIMg 5	3.3556	ER 5356	2.05
MIG/TIG	MT-AIMg 4,5 Mn	3.3548	ER 5183	2.06
MIG/TIG	MT-AIMg 4,5 Mn Zr	3.3546	ER 5087	2.07
MIG/TIG	MT-AISi 5	3.2245	ER 4043	2.08
Elektr.	MT-AISi 5	3.2245	ER 4043	2.09
MIG/TIG	MT-AISi 12	3.2585	ER 4047	2.10
Elektr.	MT-AISi 12	3.2585	ER 4047	2.11
MIG/TIG	MT-ER Ti 1	-	ER Ti 1	2.12
MIG/TIG	MT-ER Ti 2	3.7035	ER Ti 2	2.13
MIG/TIG	MT-ER Ti 5	3.7165	ER Ti 5	2.14
MIG/TIG	MT-ER Ti 7	3.7235	ER Ti 7	2.15
TIG	MT-Magnesium	-	~R AZ61 A	2.16

**Allocation base material – filler material**

Material No.	Short term	AWS	Filler metals MTC	Page
3.0205	Al 99	1200	MT-Al 99,5 Ti	2.03
3.0285	Al 99,8	1080A	MT-Al 99,5 Ti	2.03
3.0275	Al 99,7	1070A	MT-Al 99,5 Ti	2.03
3.0257	E-Al	1350A	MT-Al 99,5 Ti	2.03
3.0255	Al 99,5	1050A	MT-Al 99,5 Ti	2.03
3.0205	Al 99	1200	MT-Al 99,5 Ti	2.03
3.0515	AlMn 1	3103	MT-AlMg 3	2.04
3.3315	AlMg 1	5005A	MT-AlMg 3 / MT-AlMg 5	2.04 / 2.05
3.3326	AlMg 1,8	5051A	MT-AlMg 3 / MT-AlMg 5	2.04 / 2.05
3.3535	AlMg 3	5754	MT-AlMg 3 / MT-AlMg 5	2.04 / 2.05
3.3555	AlMg 5	5019	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.3527	AlMg 2 Mn 0,8	5049	MT-AlMg 3 / MT-AlMg 5	2.04 / 2.05
3.3537	AlMg 2,7 Mn	5454	MT-AlMg 3 / MT-AlMg 5	2.04 / 2.05
3.3545	AlMg 4 Mn	5086	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.3547	AlMg 4,5 Mn	5083	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.3206	AlMgSi 0,5	6060/6063	MT-AlSi 5 / MT-AlMg 5	2.08 / 2.05
3.3210	AlMgSi 0,7	6005A	MT-AlSi 5 / MT-AlMg 5	2.08 / 2.05
3.2315	AlMgSi 1	6082	MT-AlSi 5 / MT-AlMg 5	2.08 / 2.05
3.3211	AlMg 1 Si Cu	6061	MT-AlSi 5 / MT-AlMg 5	2.08 / 2.05
3.4335	AlZn 4,5 Mg 1	7020	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.2581	G-AlSi 12	A413	MT-AlSi 12	2.10
3.2583	G-AlSi 12 (Cu)	413.1	MT-AlSi 12	2.10
3.2211	G-AlSi 11	-	MT-AlSi 12	2.10
3.2381	G-AlSi 10 Mg	A360	MT-AlSi 12	2.10
3.2383	G-AlSi 10 Mg (Cu)	-	MT-AlSi 12	2.10
3.2373	G-AlSi 9 Mg	359	MT-AlSi 12	2.10
3.2371	G-AlSi Mg	A365.2	MT-AlSi 12	2.10
3.2341	G-AlSi 5 Mg	-	MT-AlSi 5	2.08
3.2161	G-AlSi 8 Cu 3	380.1	MT-AlSi 12	2.10
3.2151	G-AlSi 6 Cu 4	319.2	MT-AlSi 5 / MT-AlSi 12	2.08 / 2.10
3.3561	G-AlMg 5	514.1	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.3261	G-AlMg 5 Si	-	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.3541	G-AlMg 3	514	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.3241	G-AlMg 3 Si	F/B514.0	MT-AlMg 5 / MT-AlMg 4,5 Mn	2.05 / 2.06
3.4365	AlZnMgCu 1,5	7075	MT-AlMg 4,5 Mn	2.06

**The information on our products contained in the table.**

**Are based on careful examination.**

**We assume no liability for the correctness.**

**We ask the user to check our data and the products for their own use.**

## MT-AI 99,5

## 3.0259

Aluminium MIG/TIG wire for welding pure aluminium.

### Standard designation

Material No.	3.0259
AWS/ASME SFA-5.10	ER 1100
EN ISO 18273	S Al 1100

### Main base metals

Pure aluminium  
e.g. Al 99,5 (3.0255), Al 99 (3.0205)

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansions coefficient (20-100°C) [1/K]
34 - 36	210 - 230	23,5 · 10 <sup>-6</sup>

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2%-yield strength R <sub>p0,2</sub>	[MPa]	30	30
Tensile strength R <sub>m</sub>	MPa	80	80
Elongation A <sub>5</sub>	[%]	35	35

### Average chemical composition of all-weld-metal (%)

Al	other
basic	0,5

### Application notes

The weld seam area has to be clean and free from oxide film. On larger work pieces and for wall thickness exceeding 15 mm preheat the welding groove area to +150°C.

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity TIG

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### Current/Polarity MIG

= +

## MT-AI 99,5 Ti

## 3.0805

Aluminium MIG/TIG wire for welding pure aluminium.

### Standard designation

Material No.	3.0805
AWS/ASME SFA-5.10	ER 1450
EN ISO 18273	S Al 1450

### Main base metals

Pure aluminium  
e.g. Al 99,5 (3.0255), Al 99 (3.0205)

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansions coefficient (20-100°C) [1/K]
34 - 36	210 - 230	23,5 · 10 <sup>-6</sup>

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	30	30
Tensile strength R <sub>m</sub>	MPa	80	80
Elongation A <sub>5</sub>	[%]	40	35

### Average chemical composition of all-weld-metal (%)

Al	Ti
basic	0,15

### Application notes

The weld seam area has to be clean and free from oxide film. On larger work pieces and for wall thickness exceeding 15 mm preheat the welding groove area to +150°C.

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity TIG

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### Current/Polarity MIG

= +

## MT-AIMg 3

## 3.3536

Aluminium-magnesium-alloyed MIG/TIG wire for welding AIMg alloys.

### Standard designation

Material No.	3.3536
AWS/ASME SFA-5.10	ER 5754
EN ISO 18273	S Al 5754 (AIMg3)

### Main base metals

Aluminium-magnesium alloys  
e.g. AIMg 1,8 (3.3326), AIMg 3 (3.3535), sowie AlMn 1 (3.0515)

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansions coefficient (20-100°C) [1/K]
20-23	130-170	23,7 · 10 <sup>-6</sup>

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2%-yield strength R <sub>p0,2</sub>	[MPa]	80	80
Tensile strength R <sub>m</sub>	[MPa]	200	200
Elongation A <sub>5</sub>	[%]	20	20

### Average chemical composition of all-weld-metal (%)

Al	Mg	Mn	Cr	Ti
Basic	2,60-3,60	0,50	0,3	0,15

### Application notes

For larger work pieces and thicker sections than 15 mm preheat to +150 °C.

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity TIG

~

### Current/Polarity MIG

= +



## MT-AIMg 4,5 Mn

## 3.3548

Aluminium-magnesium-alloyed MIG/TIG wire for welding aluminium alloys.

### Standard designation

Material No.	3.3548
AWS/ASME SFA-5.10	ER 5183
EN ISO 18273	S Al 5183 (AlMg4,5Mn0,7(A))

### Main base metals

Aluminium-magnesium alloys

e.g. AlMg 3 (3.3535), AlMg 4,5 Mn (3.3547), AlMg 5 (3.3555); conditionally also for age-hardenable alloys like AlCuMg 1 (3.1325), AlMgSi 1 (3.2315), AlZn 4,5 Mg 1 (3.4335) AlZnMgCu 1,5 (3.4365)

### Physical properties (typical values)

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansion coefficient (20 - 100°C) [1/K]
16 - 19	110 - 120	23,7 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	140	140
Tensile strength	R <sub>m</sub>	MPa	280	280
Elongation	A <sub>5</sub>	[%]	20	20

### Average chemical composition of all-weld-metal (%)

Al	Mg	Mn	Cr	Ti
Basic	4,30-5,20	0,50-1,0	0,05-0,25	0,15

### Application notes

The seam area has to be clean and free of oxide film. Preheat larger work pieces to +150°C.

Weld seams on age-hardenable alloys should not be located in areas subject to high mechanical stress.

### Gas types applicable TIG Gas types applicable MIG

I1  
I1, Monomix (I1 with 0,015 % N2)

### Approvals

TÜV, DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity TIG

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### Current/Polarity MIG

= +

## MT-AIMg 4,5 MnZr

## 3.3546

Aluminium-magnesium-alloyed MIG/TIG wire for welding aluminium alloys.

### Standard designation

Material No.	3.3546
AWS/ASME SFA-5.10	ER 5087
EN ISO 18273	S Al 5087 (AlMg4,5MnZr)

### Main base metals

Aluminium-magnesium-alloys  
e.g. AlMg 3 (3.3535), AlMg 4,5 Mn (3.3547), AlMg 5 (3.3555); conditionally for age-hardenable alloys like AlCuMg 1 (3.1325), AlMgSi 1 (3.2315), AlZn 4,5 Mg 1 (3.4335)

### Physical properties (typical values)

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansion coefficient (20 - 100°C) [1/K]
16 - 19	110 - 120	23,7 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	140	140
Tensile strength	R <sub>m</sub>	MPa	300	300
Elongation	A <sub>5</sub>	[%]	20	20

### Average chemical composition of all-weld-metal (%)

Al	Mg	Mn	Cr	Ti	Zr
Basic	4,50-5,20	0,70-1,10	0,05-0,25	0,15	0,10-0,20

### Application notes

The seam area has to be clean and free of oxide film. Preheat larger work pieces to +150°C.  
Weld seams on age-hardenable alloys should not be located in areas subject to high mechanical stress.

### Gas types applicable TIG Gas types applicable MIG

I1  
I1, Monomix (I1 with 0,015 % N2)

### Approvals

TÜV, DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity TIG

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### Current/Polarity MIG

= +



## MT-AISi 5

## 3.2245

Aluminium-silicon-alloyed MIG/TIG wire welding AISi-Alloys.

### Standard designation

Material No.	3.2245
AWS/ASME SFA-5.10	ER 4043
EN ISO 18273	S Al 4043(AISi 5)

### Main base metals

Aluminium-silicon alloys as well as joining dissimilar aluminium alloys to each other. Conditionally suitable for age-hardenable alloys like AlCuMg 1 (3.1325), AlMgSi 1 (3.2315), AlZn 4,5 Mg 1 (3.4335)

### Physical properties

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansion coefficient (20 - 100°C) [1/K]
24 - 32	170	22,1 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Welding process		TIG AISi 5	MIG AlMgSi1
Base metal		6	6
Material thickness	(mm)	6	6
Gas shield		I1	I1
Thermal treatment		untreated	untreated
Test temperature	[°C]	+20°C	+20°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	100	100
Tensile strength R <sub>m</sub>	MPa	160	160
Elongation g A <sub>5</sub>	[%]	15	15

### Average chemical composition of all-weld-metal (%)

Al	Si
Basis	4,50-6,0

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### Approvals

TÜV, DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm 1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF, PC  
PA, PB, PF

### Current/Polarity TIG

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### Current/Polarity MIG

= +

## MT-AISI 5

## 3.2245

Special-coated electrode for welding aluminium-silicon alloys.  
Weld-metal: aluminium-silicon-alloy

### Standard designation

Material No.	3.2245
AWS/ASME SFA-5.3	E 4043

### Main base metals

Aluminium-silicon alloys as well as dissimilar aluminium alloys joined to each other. Conditionally also suitable for age-hardening alloys like e.g. AlCuMg 1 (3.1325), AlMgSi 1 (3.2315), AlZn 4,5 Mg 1 (3.4335)

### Physical properties

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansion coefficient (20 - 100°C) [1/K]
24 - 32	170	22,1 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Base metal Material thickness Thermal treatment Test temperature	(mm)	AlMgSi 1 6 untreated +20°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	90
Tensile strength R <sub>m</sub>	MPa	160
Elongation A <sub>5</sub>	[%]	15

### Average chemical composition of all-weld-metal (%)

Al	Si
Basis	5

### Redrying

1h at +120°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	40 - 70	9,1	220	2,0
3,25	350	60 - 90	13,6	147	2,0
4,00	350	80 - 120	20,2	99	2,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity

= +

## MT-AISI 12

## 3.2585

Aluminium-silicon-alloyed MIG/TIG wire for welding AISi-alloys.

### Standard designation

Material No.	3.2585
AWS/ASME SFA-5.10	ER 4047
EN ISO 18273	S Al 4047A (AISi12(A))

### Main base metals

Aluminium cast alloys containing 12 % Si max.  
e.g. G-AISI 10 Mg(3.2381), G-AISI 12 (3.2581)

### Physical properties

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansion coefficient (20 - 100°C) [1/K]
17 - 27	150 - 170	20 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Gas shield			I1 untreated +20°C
Thermal treatment		[°C]	
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	100
Tensile strength	R <sub>m</sub>	MPa	200
Elongation	A <sub>5</sub>	[%]	5

### Average chemical composition of all-weld-metal (%)

Al	Si	Mn
Basis	11,0-13,0	0,05

### Application notes

Preheat to +150°C any larger work piece or sections thicker than 15 mm.

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### Approvals

DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0
4,00	1000	10,0
5,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB  
PA, PB

### Current/Polarity TIG

~

### Current/Polarity MIG

= +

## MT-AISI 12

## 3.2585

Special-coated electrode for welding aluminium silicon cast alloys.  
Weld metal: Aluminium silicon alloy.

### Standard designation

Material No.	3.2585
AWS/ASME SFA-5.3	E 4047

### Main base metals

Aluminium cast alloys containing 12 % Si max.  
e.g. G-AISI 10 Mg(3.2381), G-AISI 12 (3.2581)

### Physical properties

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansion coefficient (20 - 100°C) [1/K]
17 - 27	150 - 170	20 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	100
Tensile strength R <sub>m</sub>	MPa	200
Elongation A <sub>5</sub>	[%]	5

### Average chemical composition of all-weld-metal (%)

Al	Si	Mn
Basis	12	0,2

### Redrying

1h at +120°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	40 - 70	9,0	222	2,0
3,25	350	60 - 90	13,3	150	2,0
4,00	350	80 - 120	20,1	100	2,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity

= +

## MT- ER Ti 1

TIG/MIG welding wire for welding pure titanium.

**Standard designation**

AWS/ASME SFA-5.16	ERTi 1
EN ISO 24034	S Ti 0100

**Main base metals**

Titan Grade 1, Grade 2, Grade 3, Grade 4

**Mechanical properties  
of all-weld-metal  
(typical values)**

Thermal treatment Test temperature		[°C]	untreated +20°C
0,2%-yield strength R <sub>p0,2</sub>		MPa	250
Tensile strength R <sub>m</sub>		MPa	320

**Average chemical  
composition  
of all-weld-metal (%)**

C	N	Fe	O	H	Ti
0,03	0,012	0,08	0,03-0,10	0,005	Rest

**Gas types applicable TIG**

I1

**Gas types applicable MIG**

I1

**TIG rod diameters available,  
unit weights**

Diameter [mm]	Length [mm]	kgs per box
1,00	1000	1,0
1,60	1000	1,0
2,00	1000	1,0
2,40	1000	1,0
3,20	1000	1,0

**MIG welding wire**

Diameter

0,8mm

1,0mm

1,2mm

**Welding positions MIG acc.to EN ISO 6947**

PA, PB, PF, PC, PE, PF, PG

**Welding positions TIG acc.to EN ISO 6947**

PA, PB

**Current/Polarity WIG**

= -

**Current/Polarity MIG**

= +

## MT- ER Ti 2

## 3.7035

TIG/MIG welding wire for welding pure titanium.

### Standard designation

AWS/ASME SFA-5.16	ER Ti 2
Material No.	3.7035
EN ISO 24034	S Ti 0120

### Main base metals

Titan Grade 1, Grade 2, Grade 3, Grade 4

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	295
Tensile strength	R <sub>m</sub>	MPa	500
Elongation	A <sub>5</sub>	[%]	42

### Average chemical composition of all-weld-metal (%)

C	N	Fe	O	H	Ti
0,08	0,05	0,25	0,18	0,013	Rest

### Gas types applicable TIG Gas types applicable MIG

l1  
l1

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,00	1000	1,0
1,60	1000	1,0
2,00	1000	1,0
2,40	1000	1,0
3,20	1000	1,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF, PC, PE, PF, PG

### Welding positions TIG acc.to EN ISO 6947

PA, PB

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- ER Ti 5

## 3.7165

TIG/MIG welding wire for welding high-strength titanium.

### Standard designation

AWS/ASME SFA-5.16	ERTi 5
Material No.	3.7165
EN ISO 24034	S Ti 6402

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment		[°C]	untreated +20°C
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	828
Tensile strength	R <sub>m</sub>	MPa	895
Elongation	A <sub>5</sub>	[%]	10

### Average chemical composition of all-weld-metal (%)

C	N	Fe	O	H	Al	V
0,05	0,03	0,22	0,12-0,20	0,015	5,5-6,7	3,5-4,5

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,00	1000	1,0
1,60	1000	1,0
2,00	1000	1,0
2,40	1000	1,0
3,20	1000	1,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF, PC, PE, PF, PG

### Welding positions TIG acc.to EN ISO 6947

PA, PB

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- ER Ti 7

## 3.7235

TIG/MIG welding wire for welding titanium .

### Standard designation

AWS/ASME SFA-5.16	ERTi 7
Material No.	3.7235
EN ISO 24034	S Ti 2401

### Main base metals

Titan Grade 7, Grade 2 , Grade 16

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	275
Tensile strength R <sub>m</sub>	MPa	400
Elongation A <sub>5</sub>	[%]	20

### Average chemical composition of all-weld-metal (%)

C	N	Fe	O	H	Pd
0,03	0,015	0,12	0,08-0,16	0,008	0,12-0,25

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,00	1000	1,0
1,60	1000	1,0
2,00	1000	1,0
2,40	1000	1,0
3,20	1000	1,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF, PC, PE, PF, PG  
PA, PB

### Current/Polarity TIG Current/Polarity MIG

= -  
= +



## MT- Magnesium

Welding rod for welding magnesium.

Standard designation

AWS/ASME SFA-5.19	~R AZ61 A
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Main base metals

AZ61A-F  
B91

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

welding processes		[°C]	TIG +20°C
Test temperature			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	180
Tensile strength	R <sub>m</sub>	MPa	280
Elongation	A <sub>5</sub>	[%]	6

Average chemical  
composition  
of all-weld-metal (%)

Al	Zn	Mn	Si	Mg
6,5	0,8	0,3	0,4	Rest

Gas types applicable TIG

l1

TIG rod diameters available,  
unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	1,0
2,00	1000	1,0
2,40	1000	1,0

Welding positions TIG acc.to EN ISO 6947

PA, PB

Current/Polarity TIG

~

## Mild and low alloyed steels

**3**

Filler metals for welding mild steels and low-alloyed steels,  
special electrode for chamfering

MTC-Name		Material No.	AWS	Page
MIG	MT-SG 2 Ti	-	ER 70 S-2	3.01
TIG	MT-WSG 2	1.5125	ER 70 S-6	3.02
Elektr.	MT-RC 3	-	E 6013	3.03
Elektr.	MT-RC 3 blau	-	E 6013	3.04
Elektr.	MT-RR 6	-	E 6013	3.05
Elektr.	MT-RR 6 gelb	-	E 6013	3.06
Elektr.	MT-RR B 7	-	E 6013	3.07
Elektr.	MT-B 10	-	E 7018	3.08
Elektr.	MT-BR 10	-	E 7016	3.09
Elektr.	MT-RR 11	-	E 7024	3.10
Elektr.	MT-RR C 6	-	E 6013	3.11
Elektr.	MT-NiCu 1 b	-	E 8018-W2	3.12
MIG	MT-NiCu 1	-	~ER 80 S-Ni 1	3.13
MIG	MT-NiMo	-	ER 90 S-G	3.14
MIG	MT-NiMoCr	-	ER 100 S-1	3.15
MIG	MT-NiMoCr 90	-	ER 120 S-G	3.16
MIG	MT-NiMoCr 96	-	~ER 120 S-G	3.17
Elektr.	MT-B 70	-	E 8018-G	3.18
MIG/TIG	MT-Mo/MT-5424	-	ER80S-G/ER70S-A1	3.19
Elektr.	MT-Mo	1.5424	E 7018 A-1	3.20
MIG/TIG	MT-CrMo 1	1.5424	ER 80 S-G	3.21
Elektr.	MT-CrMo 1	1.7339	E 8018-B2	3.22
MIG/TIG	MT-CrMo 2	1.7339	ER 90 S-G	3.23
Elektr.	MT-CrMo 2	1.7384	E 9018-B3	3.24
Gas	MT-G I	1.7384	~R 45	3.25
Gas	MT-G II	1.0324	~R 60	3.26
Gas	MT-G III	1.0494	~R 60	3.27
Gas	MT-G IV	1.6215	~R 60	3.28
MIG/TIG	MT-2,5 Ni	1.7346	ER 80 S-Ni 2	3.29

## MT-SG 2 Ti vb

Low-alloy MIG/TIG wire for welding mild and low-alloy steels. Well fitting for welding-over primers and protective zinc coatings. Non-ageing welding deposit, suitable for working temperatures from -10°C up to +450°C.

### Standard designation

EN ISO 14341-A	G/W 42 3 M21 2 Ti
AWS/ASME SFA-5.18	~ER 70 S-2

### Main base metals

S 185, S 235JRG2, S235S, S235J2G3, P265S, P235TR1, P235TR2, P265TR1, P265TR2, L210GA, P235GH, P195GH, L245MB, C21, L245NB, L245GA, P275N, P280GH, L290MB, P295GH, L290NB, S355NL, P355N, P355NL1, S355J2G3

P245GH, GS 38, P265GH, C22.3, GS45, P215NL, P255QL, P265NL, P250GH, C22.8, S275JR, P275SL, S275J2G3, S275NL, GP240GH, X42, P305GH, P355GH, S355N, L360MB, L360NB,

### Mechanical properties of all – weld – metal

(typical values)

Gas shield			M 21 untreated +20°C	M 21 untreated 0°C
Thermal treatment				
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	[MPa]	>420	
Tensile strength	R <sub>m</sub>	MPa	500-640	
Elongation	A <sub>5</sub>	[%]	>20	
Impact strength	A <sub>v</sub>	[J]	LNB	LNB

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Al	Ti+Zr
0,04	0,4-0,8	0,9-1,40	0,05-0,20	0,05-0,25

### Gas types (MIG)applicable

M20, M21

### Approvals (MIG)

DB, CE

### Approvals (TIG)

-

### Diameters available (MIG)

Diameter                      0,8mm                      1,0mm                      1,2mm

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PD, PE, PF, PG, PC

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PD, PC, PE, PF, PG

### Current/Polarity MIG

= +

### Current/Polarity TIG

= -

## MT-WSG 2

TIG-rod for welding mild and low-alloy steels. Suitable for working temperatures from -50°C up to +450°C.

### Standard designation

Material No.	1.5125
EN ISO 636-A	W 46 5 W3Si1
AWS/ASME SFA-5.18	ER 70 S-6

### Main base metals

S 185, S 235JRG2, S235S, 235J2G3, P265S, P235TR1, P235TR2, 265TR1, P265TR2, L210GA, P235GH, 195GH, L245MB, C21, L245NB, L245GA, P275N, P280GH, L290MB, P295GH, L290NB, S355NL, P355N, P355NL1, S355J2G3

P245GH, GS 38, P265GH, C22.3, GS45, P215NL, P255QL, P265NL, P250GH, C22.8, S275JR, P275SL, S275J2G3, S275NL, GP240GH, X42, P305GH, P355GH, S355N, L360MB, L360NB,

### Mechanical properties of all – weld – metal

(typical values)

Gas shield			I1 untreated +20°C	I1 untreated -50°C
Thermal treatment				
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	MPa	>420	
Tensile strength	R <sub>m</sub>	MPa	500-600	
Elongation	A <sub>5</sub>	[%]	>20	
Impact strength	A <sub>v</sub>	[J]	LNB	>47

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,06-0,14	0,7-1,0	1,3-1,6

### Gas types available

I1

### Approvals

TÜV, DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,00	1000	25,0
1,20	1000	25,0
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,00	1000	25,0

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

## MT RC 3

Medium-thickly rutile-cellulose coated electrode, weldable in all positions, especially designed for stich, assembly and vertical down position welding. Weld-metal suitable for temperatures of 0°C. up to +350°C.

### Standard designation

EN ISO 2560-A	E 42 0 RC 11
AWS/ASME SFA-5.1	E 6013

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL  
S275J2G3, S275NL, GP240GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated	untreated
Test temperature		[°C]	+20°C	0°C
Yielding point	R <sub>eH</sub>	MPa	>420	
Tensile strength	R <sub>m</sub>	MPa	500-640	
Elongation	A <sub>5</sub>	[%]	>20	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,30	0,5

### Redrying

-

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	40-60	10,57	331	3,5
2,50	350	60-90	18,52	216	4,0
3,25	350	100-130	31,25	144	4,5
4,00	350	140-170	45,00	100	4,5
5,00	450	180-210	95,38	65	6,2

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF, PG

### Current/Polarity

= -/~

## MT RC 3 blau

Medium-thickly rutile-cellulose coated electrode, weldable in all positions, especially designed for stich, assembly and vertical down position welding. Weld-metal suitable for temperatures of 0°C. up to +350°C.

### Standard designation

EN ISO 2560-A	E 42 0 RC 11
AWS/ASME SFA-5.1	E 6013

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL  
S275J2G3, S275NL, GP240GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature		[°C]	untreated +20°C	untreated 0°C
Yielding point	ReH	MPa	>420	
Tensile strength	Rm	MPa	500-640	
Elongation	A5	[%]	>20	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,30	0,5

### Redrying

-

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	40-60	10,57	331	3,5
2,50	350	60-90	18,52	216	4,0
3,25	350	100-130	31,25	144	4,5
4,00	350	140-170	45,00	100	4,5
5,00	450	180-210	95,38	65	6,2

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF, PG

### Current/Polarity

= -/~

## MT RR 6

Heavily rutile-coated electrode producing exceptionally fine-scaled seams. Working temperatures: 0°C to +350°C.

### Standard designation

EN ISO 2560-A	E 42 0 RR 12
AWS/ASME SFA-5.1	E 6013

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL  
S275J2G3, S275NL, GP240GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated +20°C	untreated 0°C
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	MPa	>420	
Tensile strength	R <sub>m</sub>	MPa	500-640	
Elongation	A <sub>5</sub>	[%]	>20	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,35	0,6

### Redrying

-

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	50-70	11,21	330	3,7
2,50	350	60-95	21,05	190	4,0
3,25	350	110-150	35,83	120	4,3
3,25	450	110-150	43,48	115	5,0
4,00	350	140-200	52,63	76	4,0
4,00	450	140-200	68,83	77	5,3
5,00	450	200-270	100,00	54	5,4
6,00	450	230-300	148,57	35	5,2

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= -/~

## MT RR 6 gelb

Heavily rutile-coated electrode producing exceptionally fine-scaled seams. Working temperatures: 0°C to +350°C.

### Standard designation

EN ISO 2560-A	E 42 0 RR 12
AWS/ASME SFA-5.1	E 6013

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL  
S275J2G3, S275NL, GP240GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated +20°C	untreated 0°C
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	MPa	>420	
Tensile strength	R <sub>m</sub>	MPa	500-640	
Elongation	A <sub>5</sub>	[%]	>20	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,35	0,6

### Redrying

-

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	50-70	11,21	330	3,7
2,50	350	60-95	21,05	190	4,0
3,25	350	110-150	35,83	120	4,3
4,00	350	140-200	52,63	76	4,0
4,00	350	140-200	68,83	77	5,3
5,00	450	200-270	100,00	54	5,4

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= -/~



## MT-RR B 7

Heavily rutile-basic-coated electrode, especially appropriate for welding root runs on pipes. Weld-metal suitable for working temperatures from 0°C up to +350°C.

### Standard designation

EN ISO 2560-A	E 38 2 RB 12
AWS/ASME SFA-5.1	E 60 13

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL,  
S275J2G3, S275NL, GP240GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated		
Test temperature			+20°C	0°C	-20°C
Yielding point	R <sub>eH</sub>	MPa	380		
Tensile strength	R <sub>m</sub>	MPa	470-600		
Elongation	A <sub>5</sub>	[%]	20		

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,3	0,6

### Redrying

2h at +140°C.

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	70-90	19,01	263	5,0
3,25	350	100-140	32,89	152	5,0
4,00	350	140-180	48,08	104	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF,

### Current/Polarity

= -/~40V

## MT B 10

Basic-coated electrode for welding mild and low-alloy steels. Controlled hydrogen absorption and increased tenacity of weld-metal, suitable for working temperatures  $-40^{\circ}\text{C}$  up to  $+450^{\circ}\text{C}$ .

### Standard designation

AWS/ASME SFA-5.1	E 7018
EN ISO 2560-A	E 42 4 B 32 H5

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N  
P280GH, L290MB, P295GH, L290NB,  
S355NL, P355N, P355NL1, S355J2G3

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL  
S275J2G3, S275NL, GP240GH,  
X42, P305GH, P355GH, S355N,  
L360MB, L360NB,

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated		
Test temperature			+20°C	-20°C	-60°C
Yielding point	R <sub>eH</sub>	MPa	>440		
Tensile strength	R <sub>m</sub>	MPa	500-640		
Elongation	A <sub>5</sub>	[%]	>26		

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,5	1,0

### Redrying

2 h at  $+300^{\circ}\text{C}$ .

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	60-90	22,02	168	3,7
3,25	350	110-140	38,24	102	3,9
4,00	350	140-190	55,56	72	4,0
4,00	450	140-190	69,33	75	5,2
5,00	450	170-250	103,85	52	5,4
6,00	450	240-330	144,74	38	5,5

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF, PE

### Current/Polarity

= +

## MT- BR 10

**A basic-double coated electrode providing good weldability in constrained positions. Controlled hydrogen content in the welding deposit, suitable for working temperatures from -20°C up to +350°C.**

### Standard designation

EN SIO 2560-A	E 38 2 B 12 H 10
AWS/ASME SFA-5.1	E 7016

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N  
P280GH, L290MB, P295GH, L290NB,  
S355NL, P355N, P355NL1, S355J2G3

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL  
S275J2G3, S275NL, GP240GH,  
X42, P305GH, P355GH, S355N,  
L360MB, L360NB,

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated		
Test temperature			+20°C	-20°C	-40°C
Yielding point	R <sub>eH</sub>	MPa	420		
Tensile strength	R <sub>m</sub>	MPa	500-640		
Elongation	A <sub>5</sub>	[%]	20		

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,06	0,5	1,2

### Redrying

2 h at +300°C.

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	50	10,90	367	4,0
2,50	350	80	19,61	255	5,0
3,25	350	115	32,89	152	5,0
3,25	450	115	42,55	141	6,0
4,00	450	150	63,83	94	6,0
5,00	450	190	100,0	60	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity

= +/-70V

## MT- RR 11

Rutile coated high-performance electrode giving 150% recovery.  
Weld-metal suitable for working temperatures from 0°C up to +350°C.

### Standard designation

EN ISO 2560-A	E 38 0 RR 53
AWS/ASME SFA-5.1	E 7024

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL  
S275J2G3, S275NL, GP240GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C	untreated 0°C
Yielding point ReH	MPa	380	
Tensile strength Rm	MPa	470-600	
Elongation A5	[%]	20	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,07	0,4	0,9

### Redrying

-

### Approvals

-

### Diameters, welding current,

### Unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
4,00	450	200	89,55	73	6,5
5,00	450	260	141,30	46	6,5

Welding positions acc.to EN ISO 6947

PA, PB

Current/Polarity

= -/~40V

## MT RR C 6

Thickly rutile-cellulose coated electrode for universal use extremely easy to weld, also in vertical down position. Welding deposit suitable for working temperatures from 0°C up to +350°C.

### Standard designation

EN ISO 2560-A	E 42 0 RC 11
AWS/ASME SFA-5.1	E 6013

### Main base metals

S 185-S 355  
S 235JRG2, S235S, 235J2G3,  
P265S, P235TR1, P235TR2, 265TR1,  
P265TR2, L210GA, P235GH, 195GH,  
L245MB, C21, L245NB, L245GA, P275N

P245GH, GS 38, P265GH, C22.3,  
GS45, P215NL, P255QL, P265NL,  
P250GH, C22.8, S275JR, P275SL,  
S275J2G3, S275NL, GP240GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature		[°C]	untreated +20°C	untreated 0°C
Yielding point	R <sub>eH</sub>	MPa	>420	
Tensile strength	R <sub>m</sub>	MPa	500-640	
Elongation	A <sub>5</sub>	[%]	>20	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,30	0,5

### Redrying

-

### Approvals

TÜV, DB, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	40-60	10,57	331	3,5
2,50	350	60-90	18,52	216	4,0
3,25	350	100-130	31,25	144	4,5
4,00	350	140-170	45,00	100	4,5
5,00	450	180-210	95,38	65	6,2

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF, PG

### Current/Polarity

= -/~

## MT - NiCu 1 b

Copper-nickel-containing steel electrode for welding weatherproof steels and cold-tough fine grain structural steels. Weld metal suitable for working temperatures from -45°C up to +300°C.

### Standard designation

EN ISO 2560-A	E 50 4 Z B 42 H 5
AWS/ASME SFA-5.5	E 7018 – W2

### Main base metals

S235J2W to S355J2G1W, Corten A, B, C

### Mechanical properties of all – weld – metal

Thermal treatment			untreated +20°C	untreated -60°C
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	MPa	500	
Tensile strength	R <sub>m</sub>	MPa	560-720	
Elongation	A <sub>5</sub>	[%]	18	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cu	Ni
0,06	0,5	1,0	0,4	0,7

### Redrying

1h at +350°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	80	20,49	244	5,0
3,25	350	115	34,97	143	5,0
4,00	450	150	67,71	96	6,5

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF, PE, PD

### Current/Polarity

= +

## MT-NiCu 1

Copper-nickel-containing steel MIG/WIG wire for welding weatherproof steels and cold-tough fine grain structural steels. Weld metal suitable for working temperatures from -46°C up to +300°C.

### Standard designation

AWS/ASME SFA-5.28	~ ER 80 S-Ni 1
EN ISO 14341-A	G/W 50 4 M Z

### Main base metals

S235J2W to S355J2G1W, Corten A, B, C

### Mechanical properties of all – weld – metal

(typical values)

Gas shield			M 21 untreated +20°C	M 21 untreated -30°C
Thermal treatment				
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	MPa	>500	
Tensile strength	R <sub>m</sub>	MPa	560-720	
Elongation	A <sub>5</sub>	[%]	>18	
Impact strength	A <sub>v</sub>	[J]		>47

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cu	Ni
0,08	0,8	1,4	0,4	0,8

### Approvals

TÜV, DB, CE

### Gas types applicable TIG Gas types applicable MIG

I1  
M 21

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF, PC, PG  
PA, PB, PF, PC, PG

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-NiMo

Low-alloy steel MIG wire for welding quenched and subsequently drawn fine-grained structural steels. Weld metal suitable for working temperatures from -30°C up to +350°C.

### Standard designation

AWS/ASME SFA-5.28	ER 90 S-G
EN ISO 16834-A	G 62 6 M21 Mn3Ni1Mo
EN ISO 16834-A	G 62 6 C1 Mn3Ni1Mo

### Main base metals

S420N-S500N, P420NH-P500NH, S420NL-S500NL

### Mechanical properties of all – weld – metal

(typical values)

Gas shield	Thermal treatment	Test temperature	[°C]	M 21 untreated		M 21 untreated
				+20°C	-30°C	-60°C
Yielding point	R <sub>eH</sub>	MPa	>620			
Tensile strength	R <sub>m</sub>	MPa	700-890			
Elongation	A <sub>5</sub>	[%]	>18			
Impact strength	A <sub>v</sub>	[J]				>47

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Mo
0,12	0,4-0,8	1,3-1,9	0,8-1,3	0,25-0,65

### Gas types applicable MIG

C1, M 20, M 21

### Approvals

DB, CE

### MIG welding wire

Diameter                      0,8 mm                      1,0 mm                      1,2 mm                      1,6 mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF, PG

### Current/Polarity MIG

= +



## MT-NiMoCr

Low-alloy MIG/TIG wire for welding quenched and subsequently drawn fine-grained structural steels. Weld metal suitable for working temperatures from -40°C up to +350°C.

### Standard designation

AWS/ASME SFA-5.28	ER 100 SG
EN ISO 16834-A	G 69 4 M Mn3Ni1CrMo

### Main base metals

S690QL1, S700MC, S420N-S500N, P420NH-P500NH, S420NL-S500NL

### Mechanical properties of all – weld – metal

(typical values)

Gas shield	Thermal treatment	Test temperature	[°C]	M 21 untreated		M 21 untreated
				+20°C	-30°C	-40°C
Yielding point	R <sub>eH</sub>	MPa		>690		
Tensile strength	R <sub>m</sub>	MPa		770-940		
Elongation	A <sub>5</sub>	[%]		>17		
Impact strength	A <sub>v</sub>	[J]				>47

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Ni	Mo	Cr
0,12	0,4-0,7	1,3-1,8	1,2-1,6	0,2-0,3	0,2-0,4

### Gas types applicable TIG Gas types applicable MIG

I1  
M 21

### Approvals MIG

TÜV, DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0

### MIG welding wire

Diameter                      0,8 mm                      1,0 mm                      1,2 mm                      1,6 mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF  
PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- NiMoCr 90

Low-alloy steel MIG wire for welding quenched and subsequently drawn high-tensile steels. Weld-metal suitable for working temperatures from -30°C up to +450°C.

**Standard designation**

AWS/ASME SFA-5.28	ER 120 S-G
EN ISO 16834-A	G 89 6 M Mn4Ni2CrMo

**Main base metals**

S 890Q

**Mechanical properties of all – weld – metal (typical values)**

Gas shield M 21			untreated	untreated
Thermal treatment			+20°C	-60°C
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	[MPa]	>890	
Tensile strength	R <sub>m</sub>	[MPa]	940-1180	
Elongation	A <sub>5</sub>	[%]	> 15	
Impact strength	A <sub>v</sub>	[J]	130	> 47

**Average chemical composition of all-weld-metal (%)**

C	Si	Mn	Ni	Mo	Cr	V
0,12	0,6-0,9	1,6-2,1	1,8-2,3	0,45-0,7	0,2-0,45	0,03

**Gas types applicable MIG**

M 20, M 21

**Approvals**

DB, CE

**MIG welding wire**

Diameter                      0,8 mm                      1,0 mm                      1,2 mm

**Welding positions MIG acc.to EN ISO 6947**

PA, PB, PD, PE, PF, PG

**Current/Polarity MIG**

**= +**

## MT- NiMoCr 96

Low-alloyed steel MIG wire for welding quenched and subsequently drawn high tensile steels. Weld metal suitable for working temperatures from -40°C up to +350°C.

**Standard designation**

AWS/ASME SFA-5.28	~ ER 120 S-G
DIN EN ISO 16834-A	G 89 4 M21 Mn4Ni2,5CrMo

**Main base metals**

S890Q, S960Q

**Mechanical properties of all-weld-metal (typical values)**

Gas shield	Thermal treatment	Test temperature	[°C]	M21 untreated	
				+20°C	-40°C
Yielding point	R <sub>eH</sub>	MPa		930	
Tensile strength	R <sub>m</sub>	MPa		940-1180	
Elongation	A <sub>5</sub>	[%]		14	
Impact strength	A <sub>v</sub>	[J]		80	40

**Average chemical composition of all-weld-metal (typical values)**

C	Si	Mn	Ni	Mo	Cr
0,12	0,8	1,9	2,35	0,55	0,45

**Gas types applicable MIG**

M 20, M 21

**MIG welding wire**

Diameter 0,8 mm 1,0 mm 1,2 mm

**Welding positions MIG acc.to EN ISO 6947**

PA, PB, PD, PE, PF, PG

**Current/Polarity**

= +

## MT-B 70

**Basic coated electrode for welding high-strength steels and steels difficult to weld. Welding deposit of manganese containing steel suitable for working temperatures from -40°C up to +450°C.**

### Standard designation

EN ISO 2560-A	E 42 4 B 42 H5
AWS/ASME SFA-5.5	E 8018-G

### Main base metals

The welding deposit is extremely insensitive to cold and hot cracking, thus suitable for welding steels with high carbon content (up to abt. 0.60 %) High impact strength at low temperatures 120% recovery. Suitable for joining rail steels. Easily weldable in all positions, little loss due to spatter formation. Well-covering slag, easy to remove.

St 50, St 60, St 70; St 55, St 55.4; GS-52, GS-60;  
H III, H IV; 17 Mn 4, 19 Mn 5; Rail steels; C 25, C 35, C 45

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated		
Test temperature			+20°C	-20°C	-40°C
Yielding point	R <sub>eH</sub>	MPa	420		
Tensile strength	R <sub>m</sub>	MPa	500-640		
Elongation	A <sub>5</sub>	[%]	20		

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,06	max. 0,5	1,40

### Redrying

2 h at +350°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	65-95	22,7	220	5,0
3,25	350	90-140	40,0	125	5,0
3,25	450	90-140	46,2	130	6,0
4,00	450	140-185	70,6	85	6,0
5,00	450	180-240	109,1	55	6,0
6,00	450	250-330	166,7	36	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PF, PE, PD

### Current/Polarity

= +

## MT-Mo / MT-5424

## 1.5424

Low-alloy molybdenum-containing steel MIG/TIG wire for welding heat resisting steels, suitable for working temperatures of up to +500°C.

### Standard designation

Material No.	1.5424
AWS/ASME SFA-5.28	ER80S-G/ER70S-A1
EN ISO 14341-A	G42 4 C/M G 2Mo
EN ISO 21952-A	G/W Mo Si
EN ISO 636-A	W 46 4 W2Mo

### Main base metals

P235G1TH-P255G1TH, P235GH-P355GH, 16Mo3, L320, L360NB-L415NB

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Test temperature	[°C]	TIG I1		MIG M21	
		+20°C	-40°C	+20°C	-40°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	>460		>420	
Tensile strength R <sub>m</sub>	MPa	530-680		500-600	
Elongation A <sub>5</sub>	[%]	>20		>20	
Impact strength A <sub>v</sub>	[J]		>47		>47

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Mo
0,08-0,12	0,3-0,7	0,9-1,3	0,4-0,6

### Gas types applicable TIG Gas types applicable MIG

I1  
M 21

### Approvals TIG (MT-5424) Approvals MIG

TÜV, DB, CE  
TÜV, DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0

### MIG welding wire

Diameter                      0,8 mm                      1,0 mm                      1,2 mm                      1,6 mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF, PG  
PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT Mo

## 1.5424

Basic coated electrode for welding heat resistant steels. Weld metal of molybdenum-containing steel suitable for working temperatures from -40°C. up to +550°C.

### Standard designation

EN ISO 3580-A	E Mo B 42
AWS/ASME SFA-5.5	E 7018 - A 1

### Main base metals

P235G1TH-P255G1TH, P235GH-P355GH, 16Mo3, L320, L360NB-L415NB

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature	[°C]	tempered +20°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	>450
Tensile strength R <sub>m</sub>	MPa	530-610
Elongation A <sub>5</sub>	[%]	>23

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Mo
0,08	0,5	1,0	0,5

### Redrying

2h at +300°C

### Approvals

TÜV, CE

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	60-90	18,82	196	3,7
3,25	350	85-140	37,14	105	3,9
4,00	450	140-190	69,33	75	5,2
5,00	450	170-250	103,84	52	5,4

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF

### Current/Polarity

= +

## MT- CrMo 1

## 1.7339

Low-alloy MIG/TIG wire of chrome molybdenum steel for welding heat and hydrogen resisting steels, suitable for working temperatures of up to +570° C°.

### Standard designation

Material No.	1.7339
EN ISO 21952-A	G/W CrMo1Si
AWS/ASME SFA-5.28	ER 80 S-G

### Main base metals

1.7335	13 CrMo 4 4	1.7218	GS - 25 CrMo 4
1.7357	GS - 17 CrMo 5 5	1.7350	22 CrMo 4 4
1.7337	16 CrMo 4 4	1.7354	GS - 22 CrMo 5 4
1.7218	25 CrMo 4	1.7225	42 CrMo 4

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I1 tempered		MIG M 11 tempered	
			+20°C	+550°C	+20°C	+550°C
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>355		>355	
Tensile strength	R <sub>m</sub>	MPa	>510		>510	
Elongation	A <sub>5</sub>	[%]	>20		>20	
Impact strength	A <sub>v</sub>	[J]	>47		>47	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0,08-0,14	0,5-0,8	0,8-1,2	0,9-1,3	0,4-0,65

### Gas types applicable TIG Gas types applicable MIG

I1  
C1, M 11-M 33

### Approvals TIG Approvals MIG

TÜV, CE  
TÜV, DB, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box [kg]
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0

### MIG welding wire

Diameter                      0,8 mm                      1,0 mm                      1,2 mm                      1,6 mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PC, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT CrMo 1

## 1.7339

Basic coated electrode for welding heat and hydrogen resisting steels.  
Weld metal of chrome-molybdenum-containing steel, suitable for working temperatures of up to +550°C.

### Standard designation

EN ISO 3580-A	E CrMo 1 B 42
AWS/ASME SFA-5.5	E 8018 - B 2

### Main base metals

1.7335	13 CrMo 4 4	1.7350	22 CrMo 4 4
1.7357	GS - 17 CrMo 5 5	1.7354	GS - 22 CrMo 5 4
1.7337	16 CrMo 4 4	1.7225	42 CrMo 4
1.7218	25 CrMo 4	1.0407	LSt 45.8
1.7218	GS -25 CrMo 4	1.0569	LStE 36

### Mechanical properties of all – weld – metal (typical values)

Test temperature	[°C]	+20°C	+550°C
0,2%-yield strength R <sub>p0,2</sub>	MPa	>420	
Tensile strength R <sub>m</sub>	MPa	500-640	
Elongation A <sub>5</sub>	[%]	>20	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0,08	0,5	0,8	1,2	0,5

### Redrying

1h at +300°C.

### Approvals

-

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	65-80	18,82	170	3,2
3,25	350	120-140	37,14	105	3,9
4,00	350	140-180	69,33	75	5,2
5,00	450	220-250	103,84	52	5,4

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF

### Current/Polarity

= +



## MT- CrMo 2

## 1.7384

MIG/TIG wire of low-alloy chrome-molybdenum-containing steel for welding heat resistant steels, suitable for working temperatures of up to +600°C.

### Standard designation

EN ISO 21952-A	G/W CrMo 2 Si
Material No.	1.7384
AWS/ASME SFA-5.28	ER 90 S-G

### Main base metals

1.7380	10 CrMo 9 10	1.7273	24 CrMo 10
1.7380	GS - 12 CrMo 9 10	1.7276	10 CrMo 11
1.8075	10 CrSiMo V 7	1.7281	16 CrMo 9 3
1.7259	26 CrMo 7		

### Mechanical properties of all – weld – metal

(typical values)

Welding process			TIG	MIG
Gas shield			I1	M11
Thermal treatment			½ h 750°C/air	½ h 750°C/air
Test temperature			+20°C	+20°C
Yielding point	ReH	MPa	460	460
Tensile strength	Rm	MPa	640	640
Elongation	A5	[%]	22	22
Impact strength	Av	[J]	140	140

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0,07	0,7	1,1	2,45	1

### Gas types applicable TIG Gas types applicable MIG

I1  
M 11, M 21, M 23, M 32

### Approvals TIG Approvals MIG

TÜV, CE  
TÜV, DB, CE

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0

### MIG welding wire

Diameter                      0,8 mm                      1,0 mm                      1,2 mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF  
PA, PB, PC, PD, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- CrMo 2

Basic coated electrode for welding heat and compressed hydrogen resistant steels. Chrome molybdenum containing welding deposit, suitable for working temperatures of up to +600°C.

### Standard designation

EN ISO 3580-A	E CrMo 2 B 42 H5
AWS/ASME SFA-5.5	E 9018 - B 3

### Main base metals

1.7380	10 CrMo 9 10	1.7273	24 CrMo 10
1.7380	GS - 12 CrMo 9 10	1.7276	10 CrMo 11
1.8075	10 CrSiMo V 7	1.7281	16 CrMo 9 3
1.7259	26 CrMo 7		

### Mechanical properties of all – weld – metal

(typical values)

Thermal treatment			tempered ½ h 750°C/air +20°C	tempered ½ h 750°C/air +600°C
Test temperature		[°C]		
0,2%-yield strength	R <sub>p0,2</sub>	MPa		
Yielding point	R <sub>eH</sub>	MPa	510	300
Tensile strength	R <sub>m</sub>	MPa	600	380
Elongation	A <sub>5</sub>	[%]	24	22
Impact strength	A <sub>v</sub>	[J]	100	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo
0,07	0,4	0,8	2,4	1,1

### Redrying

1h at +400°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	80 - 110	20,5	220	4,5
3,25	350	110- 140	37,0	135	5,0
4,00	350	150 - 190	50,5	99	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF, PD

### Current/Polarity

= +

## MT-GI

## 1.0324

Low-alloy filler rod for gas welding on mild steels welding deposit suitable for working temperatures of up to +350°C.

### Standard designation

EN ISO 12536	O I
Material No.	1.0324
AWS/ASME SFA-5.2	~R 45

### Main base metals

S235JR, S235JO, S235G2T, S255GT, P235GH, P265GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
Yielding point	R <sub>eH</sub>	MPa	>260
Tensile strength	R <sub>m</sub>	MPa	>360
Elongation	A <sub>5</sub>	[%]	>20
Impact strength	A <sub>v</sub>	[J]	>30

### Average chemical composition of all-weld-metal (%)

C	Si	Mn
0,08	0,1	0,5

### Rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,00	1000	25,0
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0
4,00	1000	25,0
5,00	1000	25,0
6,00	1000	25,0

Welding positions acc.to DIN EN ISO 6947 PA, PE, PC, PF

## MT-GII

Low-alloy filler rod for gas welding on mild steels welding deposit suitable for working temperatures of up to +350°C.

### Standard designation

EN ISO 12536	OII
Material No.	1.0494
AWS/ASME SFA-5.2	~R 60

### Main base metals

S235G2T, S255GT, S235JO, S275JO, P235G1TH, P255G1TH, P235GH, P265GH, P285NH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°
Test temperature			
Yielding point	R <sub>eH</sub>	MPa	300
Tensile strength	R <sub>m</sub>	MPa	>400
Elongation	A <sub>5</sub>	[%]	>20
Impact strength	A <sub>v</sub>	[J]	>47

### Average chemical composition of all-weld-metals

C	Si	Mn
0,10	0,08	1,0

### Rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0
4,00	1000	25,0
5,00	1000	25,0

Welding positions acc.to EN ISO 6947

PA, PE, PC, PF

## MT-G III

## 1.6215

Nickel steel filler rod for gas welding on mild steels and low-alloy steels.  
Welding deposit suitable for working temperatures from 0°C to +350°C.

### Standard designation

Material No.	1.6215
AWS/ASME SFA-5.2	~R 60
EN ISO 12536	O III

### Main base metals

S235G2T, S255GT, S235JO, S275JO, P235G1TH, P255G1TH, P235GH,  
P265GH, P285NH, P295GH

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
Yielding point	R <sub>eH</sub>	MPa	>310
Tensile strength	R <sub>m</sub>	MPa	>400
Elongation	A <sub>5</sub>	[%]	>22
Impact strength	A <sub>v</sub>	[J]	>47

### Average chemical composition of all-weld-metals

C	Si	Mn	Ni
0,05	0,05	0,95-1,25	0,35-0,80

### Approvals

TÜV, CE

### Rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0
4,00	1000	25,0
5,00	1000	25,0

Welding positions acc.to EN ISO 6947

PA, PE, PC, PF

## MT-G IV

## 1.5425

Low-alloy moly-steel filler rod for gas welding on heat resisting steels.  
Welding deposit suitable for working temperatures of up to +450°C.

### Standard designation

Material No.	1.5425
AWS/ASME SFA-5.2	~R 60
EN ISO 12536	O IV

### Main base metals

S235G2T, S355GT, S235JR, S275JO, P355T2, P235GH, P265GH,  
P285NH, P295GH, 15Mo3, 16Mo3

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°
Yielding point	R <sub>eH</sub>	MPa	>260
Tensile strength	R <sub>m</sub>	MPa	>440
Elongation	A <sub>5</sub>	[%]	>22
Impact strength	A <sub>v</sub>	[J]	>60

### Average chemical composition of all-weld-metals

C	Si	Mn	Mo
0,13	0,15	1	0,5

### Rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0
4,00	1000	25,0

Welding positions acc.to EN ISO 6947

PA, PE, PC, PF

## MT-2,5 Ni

MIG/TIG wire for welding fine grain steels and low alloyed low temperature steel. For working temperatures -60°C.

### Standard designation

EN ISO 14341-A	G 46 6 M21 2 Ni 2
AWS/ASME SFA-5.28	ER 80 S-Ni 2

### Main base metals

S255N-S380N, 14Ni6, 12Ni14, S255NL

### Mechanical properties of all – weld – metal

Gas shield			M 21 untreated +20°C	M 21 untreated -60°C
Thermal treatment				
Test temperature		[°C]		
Yielding point	R <sub>eH</sub>	MPa	>460	
Tensile strength	R <sub>m</sub>	MPa	530-680	
Elongation	A <sub>5</sub>	[%]	>20	
Impact strength	A <sub>v</sub>	[J]		>47

### Average chemical composition of all-weld-metals

C	Si	Mn	Ni
0,03	0,4-0,8	0,8-1,4	2,1-2,7

### Gas types applicable TIG Gas types applicable MIG

I1  
M 21

### Approvals TIG Approvals MIG

Tüv , DB, CE  
TÜV, DB, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	25,0
2,00	1000	25,0
2,40	1000	25,0
3,20	1000	25,0

### MIG welding wire

Diameter                      0,8 mm                      1,0 mm                      1,2 mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PF  
PA, PB, PC, PD, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## Nickel alloys

**4**

### *Filler metals for welding nickel, nickel alloys and cast iron*

<b>MTC-Name</b>		<b>Material No.</b>	<b>AWS</b>	<b>Page</b>
<b>MIG/TIG</b>	<b>MT-Nickel</b>	<b>2.4155</b>	<b>ER Ni-1</b>	<b>4.02</b>
<b>Elektr.</b>	<b>MT-Nickel</b>	<b>-</b>	<b>E Ni-CI</b>	<b>4.03</b>
<b>MIG</b>	<b>MT-NiFe</b>	<b>-</b>	<b>-</b>	<b>4.04</b>
<b>Elektr.</b>	<b>MT-NiFe</b>	<b>-</b>	<b>E NiFe – CI</b>	<b>4.05</b>
<b>Elektr.</b>	<b>MT-NiFe B</b>	<b>-</b>	<b>E NiFe – CI</b>	<b>4.06</b>
<b>MIG/TIG</b>	<b>MT-82</b>	<b>2.4806</b>	<b>ER NiCr-3</b>	<b>4.07</b>
<b>Elektr.</b>	<b>MT-182</b>	<b>2.4807</b>	<b>E NiCrFe-3</b>	<b>4.08</b>
<b>Elektr.</b>	<b>MT-182 K</b>	<b>2.4648</b>	<b>E NiCrFe-2</b>	<b>4.09</b>
<b>MIG/TIG</b>	<b>MT-Nicro 625</b>	<b>2.4831</b>	<b>ER NiCrMo-3</b>	<b>4.10</b>
<b>Elektr.</b>	<b>MT-Nicro 625</b>	<b>2.4621</b>	<b>E NiCrMo-3</b>	<b>4.11</b>
<b>MIG/TIG</b>	<b>MT-Alloy C</b>	<b>2.4886</b>	<b>ER NiCrMo-4</b>	<b>4.12</b>
<b>Elektr.</b>	<b>MT-Alloy C</b>	<b>2.4887</b>	<b>ER NiCrMo-4</b>	<b>4.13</b>
<b>MIG/TIG</b>	<b>MT-NiCu 30</b>	<b>2.4377</b>	<b>ER NiCu 7</b>	<b>4.14</b>
<b>MIG/TIG</b>	<b>MT-4607</b>	<b>2.4607</b>	<b>ER NiCrMo 13</b>	<b>4.15</b>



**Allocation base material – filler material**

Material No.	Kurzbezeichnung	Filler metals MTC	Page
2.4050	Ni 99,8	MT-Nickel	4.02 / 4.03
2.4060	Ni 99,6	MT-Nickel	4.02 / 4.03
2.4061	LC-Ni 99,6	MT-Nickel	4.02 / 4.03
2.4062	Ni 99,4 Fe	MT-Nickel	4.02 / 4.03
2.4066	Ni 99,2	MT-Nickel	4.02 / 4.03
2.4068	LC-Ni 99	MT-Nickel	4.02 / 4.03
2.4106	NiMn 1	MT-Nickel	4.02 / 4.03
2.4108	NiMn 1 C	MT-Nickel	4.02 / 4.03
2.4110	NiMn 2	MT-Nickel	4.02 / 4.03
2.4116	NiMn 5	MT-Nickel	4.02 / 4.03
2.4122	NiMn 3 Al	MT-Nickel	4.02 / 4.03
2.4128	NiAl 4 Ti	MT-Nickel	4.02 / 4.03
2.4360	NiCu 30 Fe	MT-NiCu 30	4.14
2.4374	NiCu 30 Al	MT-NiCu 30	4.14
2.4375	NiCu 30 Al	MT-NiCu 30	4.14
2.4400	NiCu 14 Fe Mo	MT-NiCu 30	4.14
2.4602	NiCr21Mo14W	MT-4607	4.15
2.4605	NiCr23Mo16Al	MT-4607	4.15
2.4610	NiMo16Cr16Ti	MT-4607	4.15
2.4618	NiCr22Mo6Cu	MT-Nicro 625	4.10 / 4.11
2.4619	NiCr22Mo7Cu	MT-Nicro 625	4.10 / 4.11
2.4630	NiCr20Ti	MT-82	4.07 / 4.08
2.4631	NiCr20TiAl	MT-82	4.07 / 4.08
2.4641	NiCr21Mo6Cu	MT-Nicro 625	4.10 / 4.11
2.4663	NiCr23Co12Mo	MT-Nicro 625	4.10 / 4.11
2.4816	NiCr15Fe	MT-82	4.07 / 4.08
2.4817	LC-NiCr15Fe	MT-82	4.07 / 4.08
2.4819	NiMo16Cr15W	MT-Alloy C	4.12 / 4.13
2.4851	NiCr23Fe	MT-82	4.07 / 4.08
2.4856	NiCr 22 Mo 9 Nb	MT-Nicro 625	4.10 / 4.11
2.4858	NiCr 21 Mo	MT-Nicro 625	4.10 / 4.11
2.4951	NiCr 20	MT-82	4.07 / 4.08

**The information on our products contained in the table**

**Are based on careful examination.**

**We assume no liability for the correctness.**

**We ask the user to check our data and the products for their own use.**

## MT- Nickel

## 2.4155

Nickel-based, special low carbon MIG/TIG wire, for welding pure nickel, suitable for working temperatures of up to +350°C.

### Standard designation

Material No	2.4155
AWS/ASME SFA-5.14	ER Ni - 1
EN ISO 18274	S Ni 2061

### Main fields of application

Nickel, low-alloy nickel (semifinished Ni-products/Ni-cast steels), e.g. LC-Ni 99,6 (2.4061), NiMn 5 (2.4116); G-Ni 95 (2.4170) as well as welded joints between these materials and steel, cast-steel, copper; claddings and buffer layers.

### Mechanical properties of all – weld – metal (typical values)

Welding process			TIG I1		MIG I1	
Gas shield			untreated		untreated	
Thermal treatment			+20°C		+20°C	
Test temperature		[°C]				
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>200		>200	
1,0% yield strength	R <sub>p1,0</sub>	MPa	>380		>380	
Elongation	A <sub>5</sub>	[%]	>30		>30	
Impact strength	A <sub>v</sub>	[J]	LNB		LNB	

### Average chemical composition of all-weld-metals

Ni	C	Fe	Mn	Si	Ti
Basis	0,15	0,2	1,0	0,7	2-3,5

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### Approvals TIG Approvals MIG

TÜV, CE  
TÜV, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter 1,0 mm 1,2 mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- Nickel

## 2.4155

**Basic-graphitic coated electrode with pure nickel core for welding dissimilar cast steels.**

### Standard designation

EN ISO 1071	E C Ni -CI 1
AWS/ASME SFA-5.15	E Ni - CI

### Main fields of application

Cast steel with lamellar graphite acc. to DIN 1691, e.g. GG-10 (GJL-100) to GG-35 (GJL-350) all-white and all-black malleable cast iron acc. DIN 1692.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
0,2% yield strength R <sub>p0,2</sub>	MPa	210
Tensile strength R <sub>m</sub>	MPa	440
Elongation A <sub>5</sub>	[%]	5
Brinell-hardness HB 10/3000		160

### Average chemical composition of all-weld-metals

C*	Fe	Ni
0,5	2,5	Basis

\*) eliminated as graphite

### Redrying

2h at +150°-+180°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	50 - 100	21,0	238	5,0
3,25	350	70 - 130	33,5	149	5,0
4,00	350	90 - 150	49,5	101	5,0

Welding positions acc.to EN ISO 6947

PA, PE, PC, PE, PF

Current/Polarity

= -/~

## MT- NiFe

Nickel iron MIG/TIG welding wire for joining dissimilar materials, i.e cast iron to special graphite cast iron.

**Standard designation**

EN ISO 1071	G/W C NiFe-1
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**Main fields of application**

Joining cast iron to special graphite cast iron according to DIN 1693, e.g. GGG-38 up to GGG-70

**Mechanical properties of all – weld – metal (typical values)**

Welding process			TIG I1		MIG M 11	
Gas shield			untreated		untreated	
Thermal treatment			+20°C		+20°C	
Test temperature			[°C]		[°C]	
0,2%-yield strength	R <sub>p0,2</sub>	MPa	350		350	
1,0% yield strength	R <sub>p1,0</sub>	MPa	450		450	
Elongation	A <sub>5</sub>	[%]	16		16	
Impact strength	A <sub>v</sub>	[J]	LNB		LNB	

**Average chemical composition of all-weld-metal (%)**

C	Ni	Fe	Cu	MN	Si
0,03	55	Rest	0,4	0,7	0,1

**Approvals TIG  
Approvals MIG**

-  
DB

**Gas types applicable TIG  
Gas types applicable MIG**

I1  
M 11, M 12

**TIG rod diameters,  
unit weights**

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

**MIG welding wire**

Diameter 1,0 mm 1,2 mm

**Welding positions MIG acc.to EN ISO 6947**

PA, PB

**Welding positions TIG acc.to EN ISO 6947**

PA, PB, PC, PE, PF

**Current/Polarity TIG**

= -

**Current/Polarity MIG**

= +

## MT- Nife

**Basic-graphitic coated electrode with nickel iron core for joining dissimilar cast iron materials.**

### Standard designation

EN ISO 1071	E C NiFe 11
AWS/ASME SFA-5.15	E NiFe - CI

### Main fields of application

Joining cast iron to special graphite cast iron according to DIN 1693, e.g. GGG-40(GJS-400) up to GGG-80 (GJS-700) all-black malleable iron according to DIN 1692, e.g. GTS-35-10 to GTS-70-02, shrink hole welding and surfacing on cast iron.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°C
Yielding point	R <sub>eH</sub>	MPa	250
Tensile strength	R <sub>m</sub>	MPa	375
Elongation	A <sub>5</sub>	[%]	4
Brinell-hardness	HB 10/3000		170

### Average chemical composition of all-weld-metal (%)

C	Fe	Ni
0,5	45	Basic

### Redrying

2h at +150°-+180°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	60 - 90	16,3	307	5,0
3,25	350	90 - 130	31,2	160	5,0
4,00	350	120- 150	47,6	105	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~

## MT-Nife B

**Basic-graphitic coated electrode with bimetallic nickel-iron-core for welding dissimilar cast iron.**

### Standard designation

EN ISO 1071	E C NiFe 11
AWS/ASME SFA-5.15	E NiFe - CI

### Main fields of application

Joining cast iron to nodular graphite cast iron according to DIN 1693, e.g. GGG-40(GJS-400) up to GGG-70(GJS-700 all-black malleable iron according to DIN 1692, e.g. GTS-35-10 to GTS-70-02, Shrink hole welding and surfacing on cast iron. Joining unalloyed steel to ductile cast iron.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated
Test temperature		[°C]	+20°C
0,2% yield strength	R <sub>p0,2</sub>	MPa	350
Tensile strength	R <sub>m</sub>	MPa	480
Elongation	A <sub>5</sub>	[%]	16
Brinell-hardness	HB 10/3000		180

### Average chemical composition of all-weld-metal (%)

C	Fe	Ni
0,5	45	54

### Redrying

2h at +150°-+180°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	70 - 110	16,3	307	5,0
3,25	350	90 - 150	31,2	160	5,0
4,00	350	100 - 180	47,6	105	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~

## MT- 82

## 2.4806

Nickel chrome iron MIG/TIG wire for welding nickel alloys and cold-tough nickel steels and for joining dissimilar steels, suitable for working temperatures of up to +550°C; cold-tough down to -196°C.

### Standard designation

EN ISO 18274	S Ni 6082
Material No	2.4806
AWS/ASME SFA-5.14	ER NiCr - 3

### Main fields of application

Nickel chrome alloys, e.g. NiCr 15 Fe (2.4816), NiCr 20 Ti (2.4951); heat-proof austenitic steels, e.g. X 10 NiCrAlTi 32 20 (1.4876); cold-tough nickel steels e.g. X 8 Ni 9 (1.5662), 12 Ni 19 (1.5680), 10 Ni 14 (1.4637), and cold-tough austenitic steels, e.g. X 2 CrNi 19 11 (1.4306), especially if subsequent thermal treatment is required.

Joining austenitic to ferritic steels subjected to working temperatures exceeding +300°C. Joining dissimilar materials, e.g. copper to ferrous metals.

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield		Thermal treatment	Test temperature	[°C]	TIG and MIG I1 untreated			
					+20°C	+600°C	-196°C	+20°C
0,2% yield strength	R <sub>p0,2</sub>		MPa	>295				
Tensile strength	R <sub>m</sub>		MPa	>550				
Elongation	A <sub>5</sub>		[%]	>30				
Impact strength	A <sub>v</sub>		[J]	LNB				

### Average chemical composition of all-weld-metal (%)

	Ni	C	Cr	Fe	Mn	Nb	Si	Ti
Basis	0,1	18,0-22,0	3,0	2,5-3,5	2,0-3,0	0,5	0,7	

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### Approvals TIG Approvals MIG

TÜV, CE  
TÜV, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter 0,8 mm 1,0 mm 1,2 mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- 182

## 2.4807

**Special basic coated electrode with high nickel content for joining dissimilar materials. Corrosion and heat resistant, giving 140% recovery.**

### Standard designation

EN ISO 14172	E Ni 6182
Material No	2.4807
AWS/ASME SFA-5.11	E-NiCrFe - 3

### Main fields of application

Welded joints between mild steel and highest alloy material, nickel and nickel alloys, copper and copper alloys and between these groups of materials. High corrosion and heat resistance in low-sulphur atmosphere. Non-scaling at temperatures higher than +1200°C. Fully austenitic weld metal, insensitive to brittleness, thermal shock resistant and cold-tough. Even at elevated temperatures no carbon diffusion into the weld metal. Also suitable for repair and maintenance, especially for welded joints on constructions with high inner tension.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment		[°C]	untreated +20°C	untreated -40°C
Test temperature				
0,2% yield strength	R <sub>p0,2</sub>	MPa	380	
0,1% yield strength	R <sub>p0,1</sub>	MPa	410	
Tensile strength	R <sub>m</sub>	MPa	630	
Elongation	A <sub>5</sub>	[%]	35	
Impact strength	A <sub>v</sub>	[J]	80	82

### Average chemical composition of all-weld-metal (%)

C	Ni	Cr	Mn	Fe	Nb
0,06	Rest	15,0-17,0	5,0-7,0	5,0-8,0	1,5-3,0

### Redrying

1h at +200°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	60 - 90	28,1	178	5,0
3,25	350	90 - 120	47,5	105	5,0
4,00	350	110 - 150	71,9	70	5,0
5,00	450	130 - 180	144,5	42	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF

### Current/Polarity

= +/~



## MT- 182 K

**2.4648**

**Special basic coated electrode with high nickel content for joining dissimilar materials. Corrosion and heat resistant.**

### Standard designation

EN ISO 14172	E Ni 6082
Material No.	2.4648
AWS/ASME SFA-5.11	~E-NiCrFe - 2

### Main fields of application

Welded joints between mild steel and highest alloy material, nickel and nickel alloys, copper and copper alloys and between these groups of materials. High corrosion and heat resistance in low-sulphur atmosphere. Non-scaling at temperatures higher than +1200°C. Fully austenitic weld metal, insensitive to brittleness, thermal shock resistant and cold-tough. Even at elevated temperatures no carbon diffusion into the weld metal. Also suitable for repair and maintenance, especially for welded joints on constructions with high inner tension.

### Mechanical properties of all – weld – metal (typical values)

Thermal treatment			untreated +20°C	untreated -40°C
Test temperature		[°C]		
0,2% yield strength	R <sub>p0,2</sub>	MPa	380	
0,1% yield strength	R <sub>p0,1</sub>	MPa	420	
Tensile strength	R <sub>m</sub>	MPa	700	
Elongation	A <sub>5</sub>	[%]	42	
Impact strength	A <sub>v</sub>	[J]	80	96

### Average chemical composition of all-weld-metal (%)

C	Ni	Cr	Mn	Fe	Nb	Mo
0,05	Rest	20,0	3,0-5,0	3,0	2,0	1,0

### Redrying

1h at +350°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	50 - 90	16,5	244	4,0
3,25	350	70 - 120	32,5	153	5,0
4,00	350	100 - 160	49,5	102	5,0
5,00	450	140 - 200	100,0	60	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF

### Current/Polarity

= +

## MT-Nicro 625

## 2.4831

Nickel chrome molybdenum-steel MIG/WIG wire for welding nickel alloys and cold-tough nickel steels and for joining dissimilar steels; suitable for working temperatures of up to +550°C, cold-tough down to -196°C.

### Standard designation

EN ISO 18274	S Ni 6625
Material.No.	2.4831
AWS/ASME SFA-5.14	ER NiCrMo - 3

### Main fields of application

Nickel-chrom-molybdenum alloys, e.g. NiCr 22 Mo 9 Nb (2.4856); NiCr 22 Mo 6 Cu (2.4618), NiCr 22 Mo 7 Cu (2.4619) and welded joints to mild steels, low and high-alloy steels/cast steels; Claddings on cold-tough nickel steels, e.g. X 8 Ni 9 (1.5662); welded joints between austenitic and ferritic steels, suitable for working temperatures exceeding +300°C.

### Mechanical properties of all – weld – metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 uneated		MIG I1 untreated	
		+20°C	-196°C	+20°C	-196°C
0,2% yield strength R <sub>p0,2</sub>	MPa	>295		>295	
Tensile strength R <sub>m</sub>	MPa	>760		>760	
Elongation A <sub>5</sub>	[%]	>30		>30	
Impact strength A <sub>v</sub>	[J]	LNB		LNB	

### Average chemical composition of all-weld-metal (%)

Ni	C	Cr	Fe	Mn	Mo	Nb	Si
Basis	0,1	20,0-23,0	5,0	0,5	8,0-10,0	3,0-4,2	0,5

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### Approvals TIG Approvals MIG

TÜV, CE  
TÜV, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-Nicro 625

## 2.4621

Rutile coated high-deposition electrode for welding nickel alloys and cold-tough nickel steels and for joining dissimilar materials. Nickel chrome molybdenum weld metal, suitable for working temperatures of up to +1000°C, cold-tough down to -196°C.

### Standard designation

EN ISO 14172	E Ni 6625
Material No.	2.4621
AWS/ASME SFA-5.11	E NiCrMo - 3
EN ISO 14700	E Ni 2

### Main fields of application

Nickel chrome molybdenum alloys, e.g. NiCr 22 Mo 9 Nb (2.4856), NiCr 22 Mo 6 Cu (2.4618), NiCr 22 Mo 7 Cu (2.4619), and welded joints between these materials and mild steels, low and high-alloy steels/cast steels: Claddings on cold-tough nickel-steels, e.g. X 8 Ni 9 (1.5662), Welded joints between austenitic and ferritic steels, suitable for working temperatures higher than +300°C.

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment		(°C)	untreated +20°C	untreated -196°C
Test temperature				
0,2 %-yield strength	R <sub>p0,2</sub>	MPa	450	
1,0%- yield strength	R <sub>p1,0</sub>	MPa	480	
Tensile strength	R <sub>m</sub>	MPa	750	
Elongation	A <sub>5</sub>	[%]	35	
Impact strength	A <sub>v</sub>	[J]	80	40

### Average chemical composition of all-weld-metal (%)

Ni	C	Cr	Fe	Mn	Mo	(Nb+Ta)	S	Si
Basis	0,06	22	max. 6,0	1,6	9	3,3	max. 0,01	0,5

### Redrying

1h at +300°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,00	300	40-70	18,4	218	4,0
2,50	350	65-100	35,0	143	5,0
3,25	350	95-130	59,0	85	5,0
4,00	350	120-170	89,5	56	5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PD, PE, PF

### Current/Polarity

= +/~

## MT-Alloy C

## 2.4886

Nickel molybdenum chrome tungsten MIG/WIG wire for welding extremely corrosion resistant nickel alloys, suitable for working temperatures of up to +400°C, cold-tough down to -196°C.

### Standard designation

EN ISO 18274	S Ni 6276
Material No.	2.4886
AWS/ASME SFA-5.14	ER NiCrMo - 4

### Main fields of application

Nickel molybdenum chrome tungsten alloys, e.g. 2.4819 - NiMo 16 Cr 15 W (Hastelloy C 276/ Nicrofer 57 16 hMoW) and welded joints between these alloys and mild, low-alloy and stainless steels/cast steels as well as nickel based alloys, claddings.

### Mechanical properties of all-weld-metal

(typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I1 untreated		MIG I1 untreated	
			+20°C	-196°C	+20°C	-196°C
0,2 %-yield strength R <sub>p0,2</sub>	MPa		470		470	
1,0%- yield strength R <sub>p1,0</sub>	MPa		500		500	
Tensile strength R <sub>m</sub>	MPa		780		780	
Elongation A <sub>5</sub>	[%]		35		35	
Impact strength A <sub>v</sub>	[J]		80	60	80	60

### Average chemical composition of all-weld-metal (%)

Ni	C	Cr	Fe	Mn	Mo	S	Si	V	W
Basis	0,01	15,5	5,0	0,5	16	max. 0,01	0,06	0,3	4

### Gas types applicable TIG Gas types applicable MIG

I1  
I1, Argon HE 30

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter 1,0mm 1,2mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-Alloy C

## 2.4887

Rutile coated high-performance electrode giving 170% recovery for corrosion and heat-stressed hardfacings. Nickel chrome molybdenum tungsten weld metal, poor in iron.

### Standard designation

EN ISO 14172	E Ni 6276
Material No.	2.4887
AWS/ASME SFA-5.11	E NiCrMo - 4
EN ISO 14700	E Ni 2

### Main fields of application

Hardfacing on new hot-working tools and tools in need of repair, e.g. on dies, saddles, hot-shearing and hot-trimming knives, and hollow-forging punches.

### Hardness of weld metal (typical values)

Thermal treatment		untreated +20°C	strain-hardened + 20°C
Test temperature	[°C]		
Vickers-hardness	HV	235	420
Brinell-hardness	HB	225	400
Rockwell-hardness	HRC	-	580

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo	W	Fe	Ni
0,08	1	1	16	17	4,5	6	Rest

### Redrying

2h at +320°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	70-90	37,0	135	5,0
3,25	350	110-140	62,6	80	5,0
4,00	350	170-200	94,8	53	5,0
5,00	450	210-260	190,4	32	6,0

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity

= +/~

## MT-NiCu 30

## 2.4377

Nickel copper MIG/TIG welding wire, suitable for working temperatures of up to +425°C.

### Standard designation

EN ISO 18274	S Ni 4060
Material No.	2.4377
AWS/ASME SFA-5.14	ER NiCu - 7

### Main fields of application

Nickel-copper alloys, e.g. NiCu 30 Fe (2.4360) and joining same to copper alloys as well as steels, joining copper alloys to steels (all-black to red metals), claddings and buffer layers.

### Mechanical properties of all-weld-metal

(typical values)

Welding process Gas shield Thermal treatment Test temperature		[°C]	TIG I1 untreated		MIG I1 untreated	
			+20°C	-196°C	+20°C	-196°C
0,2 %-yield strength	R <sub>p0,2</sub>	MPa	>180		>180	
Tensile strength	R <sub>m</sub>	MPa	>480		>480	
Elongation	A <sub>5</sub>	[%]	>30		>30	

### Average chemical composition of all-weld-metal (%)

Ni	C	Cu	Fe	Mn	Si	Ti
Basis	0,15	28,0-32,0	2,5	4,0	1,2	1,5-3,0

### Gas types applicable TIG Gas types applicable MIG

I1  
I1

### Approvals TIG Approvals MIG

TÜV, CE  
TÜV, CE

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,50	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter 1,0 mm 1,2 mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

# MT- 4607

# 2.4607

Nickel molybdenum chrome MIG/TIG wire for welding nickel alloys.  
Temperatures of up to +400°C, cold-tough down to -196°C.

**Standard designation**

Material No.	2.4607
AWS / ASME SFA-5.14	ER NiCrMo13
EN ISO 18274	S Ni 6059

**Main fields of application**

2.4610, 2.4605, 2.4819, 1.4562, 2.4856

**Mechanical properties of all-weld-metal**

(typical values)

Welding process	Gas shield	Thermal treatment	TIG I1		MIG I1	
			untreated		untreated	
Test temperature		[°C]	+20°C	-196°C	+20°C	-196°C
0,2 %-yield strength R <sub>p0,2</sub>		MPa	LNB		LNB	
Tensile strength R <sub>m</sub>		MPa	>760		>760	
Elongation A <sub>5</sub>		[%]	LNB		LNB	
Impact strength A <sub>v</sub>		[J]	LNB		LNB	

**Average chemical composition of all-weld-metal (%)**

Ni	C	Cr	Fe	Mn	Mo	Al
56	0,01	22-24	1,5	0,5	15-16,5	0,1-0,4

**Gas types applicable TIG**  
**Gas types applicable MIG**

I 1, Cronigon 10, Sagox Ni  
I 1

**Approvals TIG**  
**Approvals MIG**

TÜV, CE  
TÜV, CE

**TIG rod diameters, unit weights**

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,50	1000	10,0
3,20	1000	10,0

**MIG welding wire**

Diameter 1,0 mm 1,2 mm

**Welding positions MIG acc.to EN ISO 6947**  
**Welding positions TIG acc.to EN ISO 6947**

PA, PB, PF  
PA, PB, PC, PE, PF

**Current/Polarity TIG**  
**Current/Polarity MIG**

= -  
= +

## Hard surfacing

**5**

Filler metals for hard surfacing and repair welding on cold and hot work as well as high speed steels. Cobalt base alloys.

<i>MTC-Name</i>		<i>Material No.</i>	<i>EN ISO 14700</i>	<i>Page</i>
MIG/WIG	MT-250 HB	-	MSG 1 – 250	5.01
Elektr.	MT-300 B	-	E 1 – UM – 300 P	5.02
MIG/WIG	MT-350 HB	-	MSG 2 – 350	5.03
Elektr.	MT-400 B	-	E 1 – UM – 400 P	5.04
MIG/WIG	MT-600 HB	1.4718	MSG 6 – 60	5.05
Elektr.	MT-600 B	~1.4718	E 6 – UM – 60	5.06
Elektr.	MT-600 T	~1.4718	E 6 – UM – 60	5.07
MIG/WIG	MT-650 HB	1.2606	MSG 3-GZ-60 T	5.08
MIG/WIG	MT-2343	1.2343	MSG 3 – 55 T	5.09
MIG/WIG	MT-W 45	1.2567	MSG 3 – 45 T	5.10
Elektr.	MT-W 45	1.2567	E 3 – UM – 45 T	5.11
Elektr.	MT-W 49	1.2344	E 6 – UM – 50 PST	5.12
MIG/WIG	MT-W 60	1.3348	MSG 4 – 60 – ST	5.13
Elektr.	MT-W 60 T	1.3346	E 4 – UM – 60 – ST	5.14
Elektr.	MT-W 61	1.3255	E 4 – UM – 60 – ST	5.15
Elektr.	MT-MnCr	-	E 7 – UM – 250 – K	5.16
Elektr.	MT-Dur 59	-	E 10 – UM – 60 – GRZ	5.17
Elektr.	MT-Dur 60 V	-	-	5.18
Elektr.	MT-Dur 63	-	E 10 – UM – 65 – GRZ	5.19
Elektr.	MT-Dur 65	-	E 10 – UM – 65 – TZ	5.20
Elektr.	MT-Dur 67 V	-	E 10 – UM – 65 – GRZ	5.21
Elektr.	MT-Dur 68	-	E 10 – UM – 70 – CZ	5.22
Elektr.	MT-Co 1 u	-	E 20 – UM – 55 – CTZ	5.23
Elektr.	MT-Co 6 u	-	E 20 – UM – 45 – CTZ	5.24
Elektr.	MT-Co 21 u	-	E 20 – UM – 300 – CTZ	5.25
Elektr.	MT-Superdur u	-	E 21-GF –UM- 60-CG	5.26
Autogen	MT-Superdur	-	G 21 – GF – 55-CG	5.27
Autogen	MT-Flexdur	-	G 21 – UM – 55 CG	5.28



## MT-HB 250

Low-alloy manganese chrome steel MIG/TIG wire for resistant hardfacing on pieces to be cut after welding.

**Standard designation**

EN ISO 14700	S Fe 1
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**Main fields of application**

Hardfacing on machine parts made of structural or cast steel, e.g. slide ways, impellers, bearing surfaces, wheel rims, rails, pulleys, guidings, conveyor rollers, couplings.

**Mechanical properties of welding deposit (typical values)**

<b>Gas shield</b>		<b>M11 untreated +20°</b>
<b>Thermal treatment</b>		
<b>Test temperature</b>	[°C]	
Brinell-hardness	HB	225-275

**Average chemical composition of all-weld-metals**

C	Si	Mn	Cr
0,30	0,45	1,10	1,0

**Gas types applicable TIG**  
**Gas types applicable MIG**

I 1  
M1, M2, M3, CO<sub>2</sub>

**TIG rod diameters available, unit weights**

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,50	1000	10,0
3,20	1000	10,0

**MIG welding wire**

Diameter            0,8mm            1,0mm            1,2mm            1,6mm

**Current/Polarity TIG**

= -

**Current/Polarity MIG**

= +

## MT-300 B

**Basic coated electrode for wear resistant hardfacings. Welding deposit of low-alloy manganese chrome steel.**

**Standard designation**

EN ISO 14700	E Fe 1
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**Main fields of application**

Hardfacing on structural parts which are subjected to moderate wearing stress, e.g. slide ways, impellers, bearing faces, wheel rims, rails, pulleys, guidings, brake drums, and hoisting winches.

**Mechanical properties of welding deposit (typical values)**

Thermal treatment Test temperature	[°C]	untreated +20°
Vickers-hardness	HV	330
Brinell-hardness	HB	300
Rockwell-hardness	HRC	35

**Average chemical composition of all-weld-metals**

C	Mn	Cr
0,12	1,3	2,8

**Redrying**

2h at +320°C.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
3,25	350	90 - 140			5,0
3,25	450	90 - 110	45,8	131	6,0
4,00	450	120 - 140	68,6	88	6,0
5,00	450	160 - 170	105,8	57	6,0

**Welding positions acc.to EN ISO 6947**

PA, PB, PC, PE, PF

**Current/Polarity**

= +/-

## MT-350 HB

Low-alloy manganese chrome steel MIG/WIG wire for wear resistant hardfacings which can be machined with cutting tools.

**Standard designation**

EN ISO 14700	S Fe 2
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**Main fields of application**

Hardfacing on machine parts made of structural steel or cast steel, e.g. slide ways, impellers, bearing faces, wheel rims, rails, pulleys, guidings, conveyor rollers and couplings.

**Mechanical properties of welding deposit (typical values)**

Gas shield		M11 untreated +20°
Thermal treatment		
Test temperature	[°C]	
Vickers-hardness	HV	390
Brinell-hardness	HB	370
Rockwell-hardness	HRC	40

**Average chemical composition of all-weld-metals**

C	Si	Mn	Cr	Mo
0,08	0,55	0,9	5,0	0,9

**Gas types applicable TIG  
Gas types applicable MIG**

I 1  
M1, M2, M3, CO<sub>2</sub>

**TIG rod diameters available, unit weights**

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

**MIG welding wire**

Diameter            0,8 mm            1,0 mm            1,2mm            1,6mm

**Current/Polarity TIG**

= -

**Current/Polarity MIG**

= +

## MT-400 B

Basic coated electrode for overlays on components and machine members, which arc subjected to wear. The electrode can be well welded with an alternating current or in difficult positions, which makes the removal of the wearing parts unnecessary. The slag can be easily removed.

**Standard designation**

EN ISO 14700	E Fe 1
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**Main fields of application**

For application on running wheels, excavator parts, worms, rails, slide bars, chain links, tractor conveyors, etc. The applications are free of cracks and they can still be easily machined using hard metal discs.

**Mechanical properties of welding deposit (typical values)**

Thermal treatment Test temperature	[°C]	untreated +20°C
Brinell-hardness	HB	375 – 400 HB

**Average chemical composition of all-weld-metals**

C	Mn	Cr
0,15	1,0	3,0

**Redrying**

2h at +320°C.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
3,25	450	110 – 130	45,8	131	6,0
4,00	450	140 – 160	68,6	88	6,0
5,00	450	170 – 190	105,8	57	6,0
6,00	450				6,0

**Welding positions acc.to EN ISO 6947**

PA, PB, PC, PE, PF

**Current/Polarity**

= +/~

## MT-600 HB

## 1.4718

Chrome silicon steel MIG/TIG wire for tough abrasion resistant hardfacing.

### Standard designation

EN ISO 14700	S Fe 8
Material No.	1.4718

### Main fields of application

Hardfacing on machine parts made of structural, cast or high-manganese steel, e.g. cylinders, bearer faces, crawlers, running wheels, chaser mills, digging parts, conveyor worms, rolling crushers, paving breakers, mill guidings, cams, clamping and rebound jaws, mixer jibs, anvils.

### Mechanical properties of welding deposit (typical values)

Gas shield		M11 untreated +20°C
Thermal treatment	[°C]	
Test temperature		
Vickers-hardness	HV	670
Rockwell-hardness	HRC	59

### Thermal treatment

<b>Soft annealing</b>	+780°C. bis +820°C/5h
<b>Hardening</b>	+1000°C. at +1050°C/Oel or compressed air

### Average chemical composition of all-weld-metals

C	Si	Mn	Cr
0,50	3	0,4	9,2

### Gas types applicable TIG Gas types applicable MIG

I 1  
M1, M2, M3

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter            0,8mm            1,0mm            1,2mm            1,6mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- 600 B

## 1.4718

**Basic coated electrode for tough, abrasion resistant hardfacings. Welding deposit of wear resistant chrome silicon steel.**

### Standard designation

DIN 8555	E 6 - UM - 60
Material No.	~ 1.4718

### Main fields of application

Tough, abrasion resistant hardfacings on machine parts made of structural, cast or high-manganese steel, on pulleys, bearing faces, crawlers, impellers, chaser mills, digger parts, conveyor worms, roll type crushers, paving breakers, mill guidings, cams, clamping and rebound jaws, mixer jibs, and anvils.

### Mechanical properties of welding deposit (typical values)

Thermal treatment		untreated
Test temperature	[°C]	+20°C
Vickers-hardness	HV	650
Rockwell-hardness	HRC	58

### Thermal treatment

<b>Soft annealing</b>	+780°C at +820°C/5h
<b>Hardening</b>	+1000°C at +1050°C/Oil or compressed air

### Average chemical composition of all-weld-metals

C	Si	Mn	Cr	Mo	V
0,5	1	0,4	9	1	1,5

### Redrying

2h at +300°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	50-70	23,2	216	5,0
3,25	350	60-90	27,8	139	5,0
3,25	450	70-100	49,1	122	6,0
4,00	450	100-130	73,4	82	6,0
5,00	450	130-180	112,3	53	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~

## MT-600 T

~1.4718

Rutile coated electrode for tough abrasion resistant hardfacing welding deposit of wear resistant chrome silicon steel.

### Standard designation

EN 14700	E Fe 8
Material No.	~1.4718

### Main fields of application

Tough and wear resistant hardfacings on machine parts made of structural, cast or high-manganese steel, e.g. pulleys, bearing faces, crawlers, impellers, chaser mills, digger parts, conveyor worms, roll type crushers, paving breakers, mill guidings, cams, clamping and rebound jaws, mixer jibs, and anvils.

### Hardness of welding deposit (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
Vickers-hardness	HV	650
Rockwell-hardness	HRC	58

### Thermal treatment

<b>Soft annealing</b>	5h at +780°C at +820°C
<b>Hardening</b>	+1000°C at +1050°C/Oil or compressed air

### Average chemical composition of all-weld-metals

C	Si	Mn	Cr	Mo
0,6	1,7	0,4	6	3,5

### Redrying

2h at +300°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	60-70	22,0	227	5,0
3,25	350	80-100	35,8	140	5,0
3,25	450	80-100	48,4	124	6,0
4,00	450	100-130	71,0	85	6,0
5,00	450	130-180	115,3	52	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity

= +/~

## MT- 650 HB

## 1.2606

Wire electrode made of chrome-silicon steel for MIG/TIG welding of tough abrasion-resistant applications.

### Standard designation

EN 14700	S Fe 3
Material No.	1.2606

### Main fields of application

For hot-work steels of hot-work steels, repair and re-production of hot-work steels for operating temperatures up to +500° C.  
Application e.g. For continuous casting rolls, warming cutters, die-casting molds, dies, etc.

### Hardness of welding deposit (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
Rockwell-hardness	HRC	57-59

### Thermal treatment

<b>Soft annealing</b>	+780°C at +820°C/5h
<b>Hardening</b>	+1000°C at +1050°C/Oil or compressed air

### Average chemical composition of all-weld-metals

C	Si	Mn	Cr	Mo	V	W
0,35	1,1	0,4	5,5	1,2	0,25	1,3

### Gas types applicable TIG Gas types applicable MIG

I 1  
M1, M2, M3

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +



## MT-2343

## 1.2343

Chrome silicon steel MIG/TIG wire for tough and abrasion resistant hardfacings.

### Standard designation

EN ISO 14700	S Fe 3
Material No.	1.2343

### Main fields of application

Hardfacings on hot-work steels. Repair work on and manufacture of hot-work steel parts suitable for working temperature of up to +500°C. Applicable for example on continous casting strand rolls, hot-shearing blades, diecasting moulds, female moulds, e.g.

### Hardness of welding deposit (typical values)

Gas shield		M21 untreated +20°C
Thermal treatment		
Test temperature	[°C]	
Rockwell-hardness	HRC	50-54
Vickers-hardness	HV	600-650

### Thermal treatment

Soft annealing	+780°C. at +820°C/5h
Hardening	+1000°C at +1050°C/Oil or compressed air

### Average chemical composition of all-weld-metals

C	Si	Mn	Cr	Mo	V
0,38	1	0,5	5,0	1,1	0,5

### Gas types applicable TIG Gas types applicable MIG

I 1  
M21

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,00	1000	10,0
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- W 45

## 1.2567

**MIG/TIG welding wire for hardfacings on highly stressed hot-work tools.  
Welding deposit of chrome tungsten vanadium hard alloy.**

### Standard designation

EN ISO 14700	S Fe 3
Material No.	1.2567

### Main fields of application

Welding new or repairing used tools made of hot-work steel, e.g. press-bushings, press-discs, press or mandrel plugs, presser or beater dies, male and female dies, and swages.

### Mechanical properties of welding deposit (typical values)

Thermal treatment Test temperature	[°C]	unannealed +20°C	tempered +20°C	soft annealed +20°C
Vickers-hardness	HV	430	510	250
Brinell-hardness	HB	410	-	240
Rockwell-hardness	HRC	44	50	22

### Thermal treatment

<b>Soft annealing</b>	+740°C to +780°C/5h
<b>Hardening</b>	+1050°C to +1100°C/Oil or air
<b>Tempering</b>	+600°C to +700°C/1- 2h

### Average chemical composition of all-weld-metals

C	Si	Mn	Cr	W	V
0,2	0,2	0,3	2,4	4,5	0,6

### Gas types applicable TIG Gas types applicable MIG

I 1  
M21

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0

### MIG welding wire

Diameter 1,0mm 1,2mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- W 45

~1.2567

Lime basic coated electrode for hardfacing highly stressed hot-work tools. Welding deposit of chrome tungsten vanadium hard alloy.

### Standard designation

EN ISO 14700	E Fe 3
Material No.	~1.2567

### Main fields of application

Welding new or repairing used tools made of hot-work steel, e.g. press-bushings, press-discs, press or mandrel plugs, presser or beater dies, male and female dies, and swages.

### Hardness of welding deposit (typical values)

Thermal treatment Test temperature	[°C]	unannealed +20°C	tempered +20°C	soft annealed +20°C
Vickers-hardness	HV	430	510	250
Brinell-hardness	HB	410	-	240
Rockwell-hardness	HRC	44	50	22

### Thermal treatment

<b>Soft annealing</b>	+740°C to +780°C/5h
<b>Hardening</b>	+1050°C to +1100°C/Oil or air
<b>Tempering</b>	+600°C to +700°C/1- 2h

### Average chemical composition of all-weld-metals

C	Si	Mn	Cr	W	V
0,2	0,2	0,3	2,5	4,5	0,6

### Redrying

2h at +300°C.

### Diameters, welding current,

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	60 - 70	26,5	189	5,0
3,25	350	80 - 100	44,7	112	5,0
4,00	350	100 - 130	67,8	74	5,0
5,00	450	130 - 180	136,2	44	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity

= +/~

## MT- W 49

Electrode for repair welding on hot and cold-work tools. Welding deposit of chrome vanadium molybdenum hard alloy.

**Standard designation**

EN ISO 14700	E Fe 3
Material No.	~1.2344

**Main fields of application**

Repair welding on cold and hot-work tools. For injection moulds, diecasting moulds, hot-pressing tools, hot-shearing blades, punching tools, dies, swages, and trimming tools.

**Hardness of welding deposit (typical values)**

56 to 58 HRC (on highly carburized base materials)
--

**Average chemical composition of all-weld-metals**

C	Cr	Mo	V
0,5	6,0	1,6	1,0

**Redrying**

2h at +300°C.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	60 - 70	22,1	226	5,0
3,25	350	80 - 100	37,5	133	5,0
4,00	350	100 - 130	72,9	69	5,0

**Welding positions acc.to EN ISO 6947**

PA, PB, PC, PF

**Current/Polarity**

= +/~

## MT-W 60

## 1.3348

MIG/TIG welding wire for resurfacing high-speed steel tools and hot-work tools. Weld metal of tungsten molybdenum chrome hard alloy.

### Standard designation

EN ISO 14700	S Fe 3
Material No.	1.3348

### Main fields of application

Repair and manufacture of high-speed steel tools with high cutting-performance and good toughness when exposed to impact stress. For cutting and planing tools, milling cutters, wood working tools, cold-work tools and blanking dies.

### Hardness of welding deposit (typical values)

Thermal treatment		untreated +20°C	soft-annealed +20°C	hardened +20°C	tempered
Test temperature	[°C]				
Vickers-hardness	HV	720	280	700	720
Rockwell-hardness	HRC	58	27	60	62

### Thermal treatment

Soft annealing	+770°C to +840°C/2 to 4h
Hardening	+1190°C to +1230°C/compressed air, oil, warm bath
Tempering	+530°C to +560°C/1-2 h

### Average chemical composition of all-weld-metals

C	Si	Mn	W	Mo	Cr	V
1,0	0,3	0,3	1,8	8,3	4,0	1,9

### Gas types applicable TIG Gas types applicable MIG

I 1  
M21

### TIG rod diameters available, unit weights

Diameter [mm]	Length [mm]	kgs per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,20	1000	10,0

### MIG welding wire

Diameter 1,0mm 1,2mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-W 60 T

~1.3348

Rutile coated electrode for tough hardfacing. Welding deposit of high-speed steel.

### Standard designation

EN ISO 14700	E Fe 4
Material No.	~ 1.3346

### Main fields of application

Repair and manufacture of high-speed steel tools with high cutting-performance and good toughness when exposed to impact stress. For cutting and planing tools, milling cutters, wood working tools, cold-work tools and blanking dies.

### Hardness of welding deposit (typical values)

Thermal treatment Test temperature	[°C]	untreated			tempered	
		+20°C	+20°C	+600°C	+20°C	+600°C
Vickers-hardness	HV	700	80	600		
Rockwell-hardness	HRC	60	64	55		

### Thermal treatment

<b>Preheating</b>	+400°C to +600°C
<b>Soft annealing</b>	5 h at +830°C
<b>Hardening</b>	+1200°C to +1230°C/oil or warm bath +530°C
<b>Tempering</b>	1 h at +530°C to +540°C

### Average chemical composition of all-weld-metals

C	Cr	Mo	V	W
0,9	4,5	8	1,5	2,0

### Redrying

2h at +300°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	60 - 90	26,9	149	4,0
3,25	350	80-120	45,1	89	4,0
4,00	350	110-150	68,0	59	4,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity

= +/-~

## MT-W 61

~1.3255

Rutile coated electrode giving 140% recovery for tough hardfacings.  
Welding deposit of high-speed steel.

### Standard designation

EN ISO 14700	E Fe 4
Material No.	~1.3255

### Main fields of application

Welding new and repairing highly stressed cutting tools, e.g. screw taps, reamers, broaching tools, turning tools, counterbores, milling tools, wood working tools, die-plates, block parts. Depositing highly wear resistant build-up welds on machine parts made of structural or cast steel. The weld metal performs good hardness, also when exposed to moderate compressive or impact stress.

### Hardness of welding deposit (typical values)

Thermal treatment	Test temperature	[°C]	untreated +20°C	soft annealed	tempered +20°C
Vickers-Härte	HV			250	
Rockwell-Härte	HRC		60-63		63-66

### Thermal treatment

<b>Preheating</b>	+400°C to +600°C
<b>Soft annealing</b>	5 h at +830°C
<b>Hardening</b>	+1200°C to +1230°C/oil or warm bath +530°C
<b>Tempering</b>	1 h at +530°C to +540°C

### Average chemical composition of all-weld-metals

C	Cr	Mo	V	W	Co
0,8	4,3	1	1,6	18	5

### Redrying

2h at +300°C. Not Essentially Required.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	80-100	30,7	147	4,5
3,25	350	100-130	52,2	86	4,5
4,00	350	130-170	77,5	58	4,5

### Welding positions acc.to EN ISO 6947

PD, PE, PG

### Current/Polarity

= +/~

## MT-MnCr

**Basic coated high-performance electrode giving 140% recovery for strain-hardenable surfacings. Welding deposit of manganese steel with high chromium content.**

**Standard designation**

EN ISO 14700	E Fe 9
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**Main fields of application**

Strain-hardenable build-up welds on digging teeth, crushing cones, and breaker jaws in the stone industry. For cross frogs and diamonds of railway and tramway rails as well as wearing parts of road construction and mining machines which are mainly exposed to rolling or impact wear.

**Hardness of welding deposit (typical values)**

Thermal treatment Test temperature	[°C]	untreated +20°C	strain-hardened +20°C
Vickers-hardness	HV	265	470-550
Brinell-hardness	HB	250	450-530

**Average chemical composition of all-weld-metals**

C	Mn	Cr
0,6	17	14

**Redrying**

2h at +300°C.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	300	70-90	30,6	163	5,0
3,25	350	95-105	54,3	92	5,0
4,00	450	130-160	105,8	57	6,0
5,00	450	170-210	165,4	36	6,0

**Welding positions acc.to EN ISO 6947**

PA, PB, PC

**Current/Polarity**

= +/~



## MT-Dur 59

Rutile coated high-performance electrode giving 160% recovery for highly wear resistant build-up welds. Welding deposit of chromium hard alloy.

**Standard designation**

EN ISO 14700	E Fe 14
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**Main fields of application**

Extremely hard, wear and abrasion resistant hardfacings on machine parts and devices made of structural, cast or high-manganese steel which are exposed to extremely abrasive wear by sand, gravel, ore, coal, cement or other abrasive materials. For digger teeth, conveyor plants, mixer or agitator blades, pressing moulds, guidings, slides and similar parts suffering only little compressive or impact stress.

**Hardness of welding deposit (typical values)**

Thermal treatment Test temperature	[°C]	untreated +20°C
Vickers-hardness	HV	650
Rockwell-hardness	HRC	60

**Average chemical composition of all-weld-metals**

C	Cr	Fe
3,5	32	rest

**Redrying**

2h at +300°C. Not Essentially Required.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	70-100	31,4	159	5,0
3,25	350	100-110	53,1	94	5,0
4,00	450	130-150	103,4	58	6,0
5,00	450	170-190	161,6	37	6,0

**Welding positions acc.to EN ISO 6947**

PA, PB

**Current/Polarity**

= +/~

## MT-Dur 60 V

**Tubular high-performance electrode for highly wear resistant hardfacings. Welding deposit of chromium hard alloy.**

### Main fields of application

Wear and abrasion resistant build-up welds on machine parts and devices made of structural, cast or high-manganese steel which are subjected to strong abrasive wear and moderate impact stress, e.g. conveyor worms and grinding plates in the chamotte, clay and cement industry as well as in brickyards. Suitable for hardfacing on beaters of coal and sintering mills, beater blades, agitators, digger teeth and cone crushers.

### Hardness of welding deposit (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
Vickers-hardness	HV	780
Rockwell-hardness	HRC	63

### Average chemical composition of all-weld-metals

C	Mn	Cr
5,5	1,5	40

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
6,00	450	80-130	74,5	67	5,0
8,00	450				5,0
11,00	450				5,0

Welding positions acc.to EN ISO 6947

PA, PB

Current/Polarity

= +/~

## MT-Dur 63

**High-performance rutile coated electrode giving 170% recovery for highly wear resisting hardfacings. Welding deposit of chromium hard alloy containing.**

**Standard designation**

EN ISO 14700	E Fe 15
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**Main fields of application**

Wear and abrasion resistant build-up welds on machine parts and devices made of structural, cast or high-manganese steel which are subjected to strong abrasive wear by sand, gravel, ore, coal, cement or similiary abrasive material. Suitable for digger teeth, slag crushers, conveyors, mixer and agitator blades, scratching teeth, pressing moulds, conveyor worms, sand aerators, guidings and similar parts subjected to only little compressive or impact stress.

**Average chemical composition of all-weld-metals**

C	Cr	HRc
5,0	34,0	60-62

**Redrying**

2h at +300°C. Not Essentially Required.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
3,25	350	140 - 160	58,8	85	5,0
4,00	350	180 - 200	83,3	60	5,0
5,00	450	220 - 260	166,6	36	6,0

**Welding positions acc.to EN ISO 6947**

PA, PB

**Current/Polarity**

= +/-~

## MT-Dur 65

**Basic coated electrode with 240% recovery for welding of parts, which are subjected to extreme abrasion with medium impacts. Due to the high molybdenum contents the abrasion resistance remains up to a temperature of +600°C.**

**Standard designation**

EN ISO 14700	E Fe 16
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**Main fields of application**

For overlays on crusher stars, spikes, grate bars, for ore processing plants, grates, conveyor worms, grinding rollers, impact strips, edge mill ductors, trimming dies, earth drills, briquette presses, coal planes, draglines and rock drilling chisels.

**Average chemical composition of all-weld-metals**

C	Cr	Mo	W	V	Nb
5,5	21,0	8,0	1,0	1,0	8,0

**Redrying**

2h at +300°C.

**Diameters, welding current,**

**unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	100-110	39,7	126	5,0
3,25	350	140-150	67,1	75	5,0
4,00	450	190-210	130,7	46	6,0
5,00	450	280-310	204,3	29	6,0

**Welding positions acc.to EN ISO 6947**

PA

**Current/Polarity**

= +/-~

## MT-Dur 67 V

**High-performance electrode giving 170% recovery for highly wear resistant hardfacings. Welding deposit of chromium vanadium hard alloy containing special carbides.**

**Standard designation**

EN ISO 14700	E Fe 16
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**Main fields of application**

Highly wear and abrasion resistant hardfacings on structural parts made of mild and alloyed steels which are exposed to extremely strong abrasive wear by sand, gravel, ore, coal, cement or slag. Due to the weld metal's high abrasion resistance at elevated temperatures MT-Dur 67V is particularly suitable for hardfacing on crushing plants for live coal, coke and slag.

**Hardness of welding deposit (typical values)**

Thermal treatment		untreated
Test temperature	[°C]	+20°C
Vickers-hardness	HV	820-900
Rockwell-hardness	HRC	65-67

**Average chemical composition of all-weld-metals**

C	Cr	V
5	22	10

**Redrying**

2h at +300°C.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	110-150	33,0	152	5,0
3,25	450	140-170	71,5	84	6,0
4,00	450	180-220	108,4	55	6,0
5,00	450	230-300	169,4	35	6,0

**Welding positions acc.to EN ISO 6947**

PA

**Current/Polarity**

= +/~

## MT-Dur 68

**Basic graphitic coated high-performance electrode giving 180% recovery for highly wear resistant hardfacings. Welding deposit of chrome boron hard alloy containing special carbides.**

**Standard designation**

EN ISO 14700	E Fe 15
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**Main fields of application**

Highly wear and abrasion resistant hardfacings on structural parts made of mild and alloyed steels which are subjected to strong abrasive wear by sand, gravel, ore, coal, cement or slag. Due to its excellent resistance to abrasive wear at elevated temperatures, MT-Dur 68 is especially suitable for hardfacings on crushing plants for live coal, coke and slag.

**Hardness of welding deposit (typical values)**

Thermal treatment		untreated
Test temperature	[°C]	+20°C
Vickers-hardness	HV	820
Rockwell-hardness	HRC	65

**Average chemical composition of all-weld-metals**

C	B	Cr
4,5	~ 3,5	28

**Redrying**

2h at +300°C.

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	80-120	27,3	183	5,0
3,25	350	140-170	48,5	103	5,0
3,25	450	140-170	59,3	101	6,0
4,00	450	180-220	89,8	67	6,0
5,00	450	230-300	140,3	43	6,0

**Welding positions acc.to EN ISO 6947**

PA

**Current/Polarity**

= +/~

## MT- Co 1 U

Rutile coated electrode for noncorrosive, heat resistant and highly wear resistant hardfacings.

### Standard designation

EN ISO 14700	E Co 3
AWS/ASME SFA-5.13	E CoCr - C

### Main fields of application

Highly wear resistant hardfacings with very good corrosion-resistance, good elevated temperature hardness and non-scaling property, very good sliding property; polishable weld metal. For highly stressed sealing and sliding faces on armatures, pumps, engines, press worms, scrapers, earth borers and sliding skids.

### Hardness of welding deposit (typical values)

Test temperature	[°C]	+20°C	+600°C
Vickers-hardness	HV	560	430
Brinell-hardness	HB		410
Rockwell-hardness	HRC	53	44

### Average chemical composition of all-weld-metals

C	Co	Cr	W
2,5	Basis	30	15

### Redrying

2h at +300°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
3,25	350	80 - 100			5,0
4,00	350	100 - 130			5,0
5,00	350	130 - 180			5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC

### Current/Polarity

= +/~

## MT- Co 6 U

Rutile coated electrode for welding tough, noncorrosive, high-temperature and wear resistant hardfacings. Welding deposit of cobalt chromium tungsten alloy, poor in iron.

### Standard designation

EN ISO 14700	E Co 2
AWS/ASME SFA-5.13	E CoCr - A

### Main fields of application

Tough, wear resistant build-up welds with good corrosion resistance high elevated temperature hardness and resistance to thermal shocks, excellent non-scaling and sliding properties, and good capability of taking polish. For sealing and running faces of mountings and pumps, valves, agitator shafts, hot working mandrils, hot-trimming plates, hot-punching dies and gripping pliers.

### Hardness of welding deposit (typical values)

Thermal treatment		untreated	untreated
Test temperature	[°C]	+20°C	+600°C
Vickers-hardness	HV	450	300
Brinell-hardness	HB	430	285
Rockwell-hardness	HRC	45	30

### Average chemical composition of all-weld-metals

C	Co	Cr	W
1	Basis	31	6

### Redrying

2h at +300°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
3,25	350	80 - 120			5,0
4,00	350	110 - 160			5,0
5,00	350	140 - 180			5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC

### Current/Polarity

= +/~



## MT- Co 21 U

Rutile coated electrode for welding noncorrosive, heat and wear resistant hardfacings. Welding deposit of cobalt chromium alloy.

### Standard designation

EN ISO 14700	E Co 1
AWS/ASME SFA-5.13	E CoCr-E

### Main fields of application

Wear resistant and shock-stressed hardfacings with excellent anticorrosion property and elevated temperature hardness, e.g. on mountings of all kinds, valve seats, high-temperature liquid pumps, jet and diecasting moulds as well as hot-working tools.

### Hardness of welding deposit (typical values)

Test temperature	[°C]	+20°C	+600°C
Vickers-Hardness	HV	320	300
Brinell-Hardness	HB	305	285
Rockwell-Hardness	HRC	32	30

### Average chemical composition of all-weld-metals

C	Cr	Ni	Mo	Co
0,25	27	3,0	5,0	Basic

### Redrying

2h at +300°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
3,25	350	80 - 100			5,0
4,00	350	100 - 130			5,0
5,00	350	130 - 180			5,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC

### Current/Polarity

= +/~

## MT- Superdur U

**Graphitic coated flux-cored electrode for extremely wear resistant hardfacings. The welding deposit consists of a ferritic solid mass containing about 70% embedded tungsten carbides.**

**Standard designation**

EN 14700	E Fe 20
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**Main fields of application**

Extremely wear resistant hardfacings, e.g. on pieces subjected to extremely high abrasive stress in the sand, gravel, stone, cement and ceramics industry, in well sinking, mining of ores, road construction and mining. Used for agitators, drill bits, mixer arms, levelling blades, conveyor worms of all kinds, ductors (scrapers) and stirrer spindles.

**Hardness of welding deposit (typical values)**

	Tungsten carbides	Solid mass
Vickers-Hardness HV 0,05	2200	700

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
3,50	350	80 - 110	29,4	170	5,0
4,00	350	90 - 120			5,0
5,00	350	100 - 130	57,3	87	5,0

**Welding positions after DIN EN ISO 6947**

PA, PB

**Current/Polarity**

= +/-

## MT- Superdur

**Flux-cored gas welding filler rod for extremely wear resistant hardfacings. The welding deposit consists of a ferritic solid mass containing about 70% embedded melting tungsten carbides.**

**Standard designation**

EN ISO 14700	T Fe 20
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**Main fields of application**

Hardfacing in the sand, gravel, stone, cement and ceramics industry, in well sinking, mining of ores, road construction and mining. Used on agitators, drill bits, mixer arms, levelling blades, conveyor worms of all kinds, ductors (scrapers) and stirrer spindles.

**Hardness of welding deposit (typical values)**

	Tungsten carbides	Solid mass
Vickers-Hardness HV 0,05	2200	700

**Diameters, welding current, unit weights**

Diameter [mm]	Length [mm]	Kg per box
3,50	350	5,0
4,00	350	5,0
5,00	350	5,0
6,00	350	5,0
8,00	700	5,0

## MT- Flexdur

Flexibly coated gas welding filler rod for extremely wear resistant hardfacings. The welding deposit consists of a nickel-containing solid mass with about 75% embedded melting tungsten carbides.

**Standard designation**

EN ISO 14700	T Ni 20
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**Main fields of application**

Extremely wear resistant hardfacings, especially on pisces subjected to abrasive wear, e.g. in the clay and ceramics industry, in mining, well sinking, and road construction. Used for building-up worm edges, sand aerators, drill bits, mixers, agitators and strippers.

**Hardness of welding deposit (typical values)**

	Tungsten carbides	Solid mass
Vickers-Hardness HV 0,05	2200	700

**Diameters welding current, unit weights**

Diameter [mm]	Length [mm]	Kgs Per box
6,00	500	5
6,00	Reel H-390	20

## Copper alloys

### *Filler metals for welding copper and copper alloys*

**6**

<i>MTC-Name</i>		<i>Material No.</i>	<i>AWS</i>	<i>Page</i>
MIG/WIG	MT-CuAl 8	2.0921	ER CuAl-A 1	6.02
Elektr.	MT-Albro T	2.0926	ER CuAl-A 2	6.03
Elektr.	MT-Albro Mn	2.1368	~E CuMnNiAl	6.04
MIG/WIG	MT-CuAl 8 Mn	2.1367	ER CuMnNiAl	6.05
MIG/WIG	MT-CuAl 8 Ni 2	2.0922	-	6.06
MIG/WIG	MT-CuAl 8 Ni 6	2.0923	ER CuNiAl	6.07
MIG/WIG	MT-CuSn	2.1006	ER Cu	6.08
MIG/WIG	MT-CuSi 3	2.1461	ER CuSi-A	6.09
MIG/WIG	MT-CuSn 6	2.1022	ER CuSn-A	6.10
Elektr.	MT-Zibro 6 T	2.1025	E CuSn- A	6.11
MIG/WIG	MT-CuSn 12	2.1056	-	6.12
MIG/WIG	MT-MS 60	2.0366	ER CuZn-A	6.13
Autogen	MT-Hartlot 1 F	2.0367	RB CuZn-A	6.14
Autogen	MT-Hartlot 2 F	2.0711	RB CuZn-D	6.15
MIG/WIG	MT-CuAg	2.1211	-	6.16
MIG/WIG	MT-CuNi 30 Fe	2.0837	ER CuNi	6.17

**Allocation base material – filler material**

Material No.		Filler metals MTC	Page
2.0060	E-Cu 57	MT-CuSn / MT-CuAg	6.08 / 6.16
2.0065	E-Cu 58	MT-CuSn / MT-CuAg	6.08 / 6.16
2.0070	SE-Cu	MT-CuSn / MT-CuAg	6.08 / 6.16
2.0080	F-Cu	MT-CuSn / MT-CuAg	6.08 / 6.16
2.0090	SF-Cu	MT-CuSn / MT-CuAg	6.08 / 6.16
2.0220	CuZn 5	MT-CuSn 6	6.10
2.0230	CuZn 10	MT-CuSn 6	6.10
2.0240	CuZn 15	MT-CuSn 6	6.10
2.0250	CuZn 20	MT-CuSn 6	6.10
2.0280	CuZn 33	MT-CuSn 6	6.10
2.0321	CuZn 37	MT-CuSn 6	6.10
2.0335	CuZn 36	MT-CuSn 6	6.10
2.0360	CuZn 40	MT-CuSn 6	6.10
2.0530	CuZn 39 Sn	MT-CuSn 6	6.10
2.0812	CuNi 10	MT-CuNi 30 Fe	6.17
2.0818	CuNi 15	MT-CuNi 30 Fe	6.17
2.0822	CuNi 20	MT-CuNi 30 Fe	6.17
2.0830	CuNi 25	MT-CuNi 30 Fe	6.17
2.0836	CuNi 30	MT-CuNi 30 Fe	6.17
2.0872	CuNi 10 Fe	MT-CuNi 30 Fe	6.17
2.0916	CuAl 5	MT-CuAl 8	6.02
2.0920	CuAl 8	MT-CuAl 8	6.02
2.0928	G-CuAl 9	MT-CuAl 8	6.02
2.0936	CuAl 10 Fe	MT-CuAl 8 Ni 2	6.06
2.0940	G-CuAl 10 Fe	MT-CuAl 8 Ni 2	6.06
2.0960	CuAl 9 Mn	MT-CuAl 8 Ni 2	6.06
2.0966	CuAl 10 Ni	MT-CuAl 8 Ni 2	6.06
2.0970	G-CuAl 9 Ni	MT-CuAl 8 Ni 2	6.06
2.0978	CuAl 11 Ni	MT-CuAl 8 Ni 2	6.06
2.1050	G-CuSn 10	MT-CuSn 12	6.12
2.1052	G-CuSn 12	MT-CuSn 12	6.12
2.1090	G-CuSn 7 Zn Pb	MT-CuSn 6	6.10
2.1096	G-Cu Sn 5 Zn Pb	MT-CuSn 6	6.10
2.1363	CuMn 2	MT-CuSi 3	6.09
2.1522	CuSi 2 Mn	MT-CuSi 3	6.09
2.1525	CuSi 3 Mn	MT-CuSi 3	6.09

**The information on our products contained in the table are based on careful examination.**

**We assume no liability for the correctness.**

**We ask the user to check our data and the products for their own use.**

## MT- CuAl 8

## 2.0921

Copper aluminium MIG/TIG welding wire.

### Standard designation

EN ISO 24373	S Cu 6100
Material No.	2.0921
AWS/ASME SFA-5.6	ER CuAl - A 1

### Main fields of application

Copper aluminium alloys, e.g. Albronze containing 7-9% Al, welded joints between copper and copper alloys and hardfacings on mild and low-alloy steels as well as cast iron.

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansions coefficient (20-300°C) [1/K]
8	65	17 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Gas shield		I1 untreated	
Thermal treatment			
Test temperature	[°C]	+20°C	
0,2 %-yield strength R <sub>p0,2</sub>	MPa	200	
Tensile strength R <sub>m</sub>	MPa	430	
Elongation A <sub>5</sub>	[%]	40	
Impact strength A <sub>v</sub>	[J]	100	
Brinell-hardness HB 10/1000		140	

### Average chemical composition of all-weld-metal (%)

Cu	Al
Bal.	8

### Gas types applicable TIG

I 1

### Gas types applicable MIG

I 1

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0

### MIG welding wire

Diameter                      0,8mm                      1,0mm                      1,2mm                      1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- Albro T

## 2.0926

Special rutile coated electrode for welding aluminium bronzes. Aluminium bronze welding deposit.

### Standard designation

Material No.	2.0926
AWS/ASME SFA-5.7	E CuAl - A 2

### Main fields of application

Copper aluminium alloys, e.g. Al-bronze containing 7-9% Al; hardfacings on mild and low alloy-steels as well as cast iron.

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansions coefficient (20-300°C) [1/K]
6	70	17 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
0,2 %-yield strength R <sub>p0,2</sub>	MPa	400
Tensile strength R <sub>m</sub>	MPa	660
Elongation A <sub>5</sub>	[%]	15
Brinell-Härte HB 10/1000		150

### Average chemical composition of all-weld-metal (%)

Cu	Al	Mn	Fe
Bal.	8,0	0,5	0,7

### Redrying

1h at +130°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	50 - 70	16,4	305	5,0
3,20	350	90 - 110	27,7	181	5,0
4,00	350	130 - 150	42,0	119	5,0
5,00	350	150 - 200	84,5	59	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity

= +/~



## MT- Albro Mn

## 2.1368

Special rutile coated electrode for welding multi-alloy aluminium bronzes.  
Welding deposit of high manganese multi-alloy aluminium bronze.

### Standard designation

Material No.	2.1368
AWS/ASME SFA-5.6	~ E CuMnNiAl

### Main fields of application

Manganese and nickel containing copper-aluminium alloys. Highly stressed corrosion resistant build-up welds on mild and low-alloy steels and cast iron.

### Physical properties (typical values)

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]
3	30

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment Test temperature	[°C]	untreated +20°C
0,2 %-yield strength R <sub>p0,2</sub>	MPa	400
Tensile strength R <sub>m</sub>	MPa	650
Elongation A <sub>5</sub>	[%]	15
Brinell-Härte HB 10/1000		220

### Average chemical composition of all-weld-metal (%)

Cu	Mn	Al	Fe	Ni
Bal.	12	6,5	2	2

### Redrying

1h at +70°C- +90°C.

### Diameters, welding current, unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	50-80	20,8	240	5,0
3,25	350	80-120	35,1	142	5,0
4,00	350	120-150	53,2	94	5,0
5,00	450	150-200	106,7	56	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PF

### Current/Polarity

= +

## MT-CuAl 8 Mn

MIG welding wire of high-manganese multi-alloy aluminium bronze.

### Standard designation

EN ISO 24373	S Cu 6338
Material No.	2.1367
AWS/ASME SFA-5.7	ER CuMnNiAl

### Main fields of application

Manganese and nickel containing copper-aluminium alloy; for highly stressed corrosion resistant build-up welds on mild and low-alloy steels and cast iron.

### Physical properties (typical values)

Electrical conductivity at +20°C	[S.m/mm <sup>2</sup> ]	3-5
Thermal conductivity at +20°C	[W/(m · k)]	30

### Mechanical properties of all-weld-metal (typical values)

Gas shield		[°C]	I1 untreated + 20°C
Thermal treatment			
Test temperature			
Tensile strength	R <sub>m</sub>	MPa	~900
Elongation	A <sub>5</sub>	[%]	~10
Impact strength	A <sub>v</sub>	(J)	~180
Brinell-hardness	HB 10/1000		290

### Average chemical composition of all-weld-metal(%)

Cu	Mn	Al	Fe	Ni
Bal.	11,0-14,0	7,0-8,5	2,0-4,0	1,5-3,0

### Gas types applicable MIG Gas types applicable TIG

I 1, argon-Helium  
I 1

### TIG rod diameters, unit weights

Diameter [mm]	Length [mm]	Kg per box
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0

### Diameters available MIG

Diameter 1,0 mm 1,2mm 1,6 mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-CuAl 8 Ni 2

## 2.0922

Multi-alloy aluminium bronze MIG/TIG wire for welding copper aluminium alloys.

### Standard designation

EN ISO 24373	S Cu 6327
Material No.	2.0922

### Main fields of application

Copper-aluminium-alloys, e.g. Al-bronze containing 7-9% Al, multi-alloy aluminium bronzes.

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]
5	50

### Mechanical properties of all-weld-metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2 %-yield strength R <sub>p0,2</sub>	[MPa]	270	270
Tensile strength R <sub>m</sub>	[MPa]	530	530
Elongation A <sub>5</sub>	[%]	30	30
Impact strength A <sub>v</sub>	[J]	70	70
Brinell-hardness HB 10/1000		140	140

### Average chemical composition of all-weld-metal (%)

Cu	Al	Ni	Mn	Fe
Bal.	8	2,2	2,2	2

### Application notes

**TIG:** preheating of the base material is generally not necessary.

**MIG:** preheating is only necessary on large work-pieces. Pulsed arc welding is recommended for the first layer when resurfacing iron materials.

### Gas types applicable TIG Gas types applicable MIG

I 1  
I 1

### Diameters available, welding current,

### unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0

### MIG welding wire

Diameter 1,0mm 1,2mm 1,6 mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +/~

## MT-CuAl 8 Ni 6

## 2.0923

MIG wire for welding multi-alloy aluminium bronzes. Welding deposit of multi-alloy aluminium bronze.

### Standard designation

EN ISO 24373	S Cu 6328
Material No.	2.0923
AWS/ASME SFA-5.7	ER CuNiAl

### Main fields of application

Multi-alloy aluminium bronzes, copper aluminium nickel alloys; saltwater resistant build-up welds on mild and low-alloy steels and cast iron.

### Physical properties (typical values)

<b>El.conductivity at 20°C</b> [S · m/mm <sup>2</sup> ]	<b>Thermal conductivity at 20°C</b> [W/(m · K)]
4-5	20-40

### Mechanical properties of all-weld-metal (typical values)

<b>Thermal treatment</b> <b>Test temperature</b>	<b>[°C]</b>	<b>untreated</b> <b>+ 20°C</b>
0,2 %-yield strength R <sub>p0,2</sub>	MPa	380
Tensile strength R <sub>m</sub>	MPa	500
Elongation A <sub>5</sub>	[%]	10
Brinell-hardness HB 10/1000		150

### Average chemical composition of all-weld-metal (%)

Cu	Al	Fe	Mn	Ni
Bal.	9,0	3,5	1,5	5,0

### Gas types applicable TIG Gas types applicable MIG

I 1  
I 1

### Diameters available, welding current, unit weights

<b>Diameter [mm]</b>	<b>Length [mm]</b>	<b>kgs per box [kg]</b>
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0

### MIG welding wire

Diameter 1,0mm 1,2mm 1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PE, PF

### Current/Polarity TIG Current/Polarity MIG

= -  
= +

## MT-CuSn

## 2.1006

Copper MIG/TIG wire for welding pure copper.

### Standard designation

EN ISO 24373	S Cu 1898
Material No.	2.1006
AWS/ASME SFA-5.7	ER Cu

### Main fields of application

Weldable copper grades, e.g. SE - Cu (2.0070), SW - Cu (2.0076), SF - Cu (2.0090), OF - Cu (2.0040)

### Physical properties (typical values)

El. Conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansion coefficient [1/K]
15 - 20	120 - 145	18 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2 %-yield strength R <sub>p0,2</sub>	MPa	100	100
Tensile strength R <sub>m</sub>	MPa	220	220
Elongation A <sub>5</sub>	[%]	30	30
Impact strength A <sub>v</sub>	[J]	80	70
Brinell-hardness HB 10/1000		60	60

### Average chemical composition of all-weld-metal (%)

Cu	Sn	Si	Mn
Bal.	0,8	0,3	0,3

### Gas types applicable TIG Gas types applicable MIG

I 1  
I 1

### Diameters available, welding current, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0
4,00	1000	10,0

### MIG welding wire

Diameter 1,0mm 1,2mm 1,6mm

### Welding positions MIG acc.to EN ISO 6947 Welding positions TIG acc.to EN ISO 6947

PA, PB, PF  
PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-CuSi 3

## 2.1461

Copper silicon alloy MIG/TIG welding wire.

### Standard designation

EN ISO 24373	S Cu 6560
Material No.	2.1461
AWS/ASME SFA-5.7	ER CuSi - A

### Main fields of application

Copper, low-alloy copper and copper zinc alloys; build-up welds on mild and low-alloy steels and cast iron.

### Physical properties (typical values)

El. conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal Expansions coefficient (+20°C-+300°C) [1/K]
3 - 4	35	18 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2 %-yield strength R <sub>p0,2</sub>	MPa	120	120
Tensile strength R <sub>m</sub>	MPa	350	350
Elongation A <sub>5</sub>	[%]	40	40
Impact strength A <sub>v</sub>	[J]	60	60
Brinell-hardness HB 10/1000		80	80

### Average chemical composition of all-weld-metal (%)

Cu	Si	Mn	Sn	Fe	Zn
Bal.	3	1	0,1	0,07	0,1

### Gas types applicable TIG Gas types applicable MIG

I 1

I 1

### Diameters available, welding current, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0
4,00	1000	10,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm 1,6mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT-CuSn 6

## 2.1022

Copper tin MIG/TIG welding wire.

### Standard designation

EN ISO 24373	S Cu 5180
Material No.	2.1022
AWS/ASME SFA-5.7	ER CuSn - A

### Main fields of application

Copper tin alloys, e.g. bronzes containing 4-8%, copper tin alloys (brass), and copper tin zinc lead cast alloys; build-up welds on cast iron.

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansions coefficient (20-300°C) [1/K]
7 - 9	75	18 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Welding process Gas shield Thermal treatment Test temperature	[°C]	TIG I1 untreated +20°C	MIG I1 untreated +20°C
0,2 %-yield strength R <sub>p0,2</sub>	MPa	150	140
Tensile strength R <sub>m</sub>	MPa	260	300
Elongation A <sub>5</sub>	[%]	20	20
Brinell-hardness HB 10/1000		80	80

### Average chemical composition of all-weld-metal (%)

Cu	Sn	P
Bal.	6	0,2

### Gas types applicable TIG Gas types applicable MIG

I 1  
I 1

### Diameters available, welding current, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0

### MIG welding wire

Diameter 0,8mm 1,0mm 1,2mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- Zibro 6 T

## 2.1025

Special basic coated electrode for welding brass and tin bronzes. Tin bronze welding deposit containing 6% tin.

### Standard designation

Material No.	2.1025
AWS/ASME SFA-5.6	E CuSn-A

### Main fields of application

Welding copper tin alloys, e.g. bronze containing 4 – 8% Sn, copper zinc alloys (brass), and copper tin zinc cast alloys; surface welding on cast iron.

### Physical properties (typical values)

El.conductivity at 20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at 20°C [W/(m · K)]	Linear thermal expansions coefficient (20-300°C) [1/K]
7	75	18,5 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment		untreated + 20°C
Test temperature	[°C]	
0,2 %-yield strength R <sub>p0,2</sub>	MPa	180
Tensile strength R <sub>m</sub>	MPa	295
Elongation A <sub>5</sub>	[%]	25
Brinell-hardness HB 10/1000		100

### Average chemical composition of all-weld-metal (%)

Cu	Sn
Bal.	6

### Redrying

1h at +200°C.

### Diameters, welding current, Unit weights

Diameter [mm]	Length [mm]	Current [A]	Average weight kg/1000 pcs.	Pieces per box	Kg per box
2,50	350	55 - 80	19,4	258	5,0
3,25	350	80 - 100	32,0	156	5,0
4,00	450	90 - 130	63,1	95	6,0

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity MIG

= +/-~



## MT-CuSn 12

## 2.1027

MIG/TIG wire for welding tin bronzes, multi-alloy tin bronzes and cast red bronze. Tin bronze welding deposit containing 12% tin.

### Standard designation

EN ISO 24373	S Cu 5410
Material No.	2.1056

### Main fields of application

Copper tin alloys, e.g. bronze containing 10-12 % Sn, copper zinc alloys (brass), copper tin zinc lead cast alloys (red bronze: Rg5, Rg7 ); build-up welds on cast iron.

### Physical properties (typical values)

El.conductivity at +20°C [S · m/mm <sup>2</sup> ]	Thermal conductivity at +20°C [W/(m · K)]	Linear thermal expansions coefficient (+20°C-+300°C) [1/K]
3 - 5	40 - 50	18.5 · 10 <sup>-6</sup>

### Mechanical properties of all-weld-metal (typical values)

Thermal treatment Test temperature	[°C]	untreated + 20°C
0,2 %-yield strength R <sub>p0,2</sub>	MPa	200
Tensile strength R <sub>m</sub>	MPa]	350
Elongation A <sub>5</sub>	[%]	15
Brinell-hardness		120

### Average chemical composition of all-weld-metal (%)

Cu	Sn
Bal.	12

### Application notes

Preheating to +250°C is required for sections thicker than 6 mm.

TIG: When resurfacing iron materials, introduce as much filler rod as possible into the arc.

MIG: Pulsed arc welding is recommended for build-up welds on iron materials.

### Gas types applicable TIG Gas types applicable MIG

I 1  
I 1

### Diameters available, welding current, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0
4,00	1000	10,0

### MIG welding wire

Diameter 1,0mm 1,2mm

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

## MT- MS 60

## 2.0366

### Brazing rods

#### Standard designation

EN ISO 24373	S Cu 4641
Material No.	2.0366
AWS/ASME SFA-5.8	CuZn-A

#### Main fields of application

MT-MS 60 are particularly desoxidizing and degassing multipurpose brazing alloys of outstanding properties for high-quality brazing in automotive construction, in the bicycle and motorcycle industry, in fitting and instrument construction, plumbing craft, repair shops, etc. Suitable for brazing steel, cast iron malleable cast steel, red bronze, tin bronze and copper, for hardfacing sliding and wearing surfaces and for joining brass, bronze, copper and copper alloys.

#### Physical properties (typical values)

Working temperature	Solidus-liquidus-temperature [°C]	Density [g/cm <sup>3</sup> ]
900	870/890	8,4

#### Tensile strength of the brazed (typical values)

350 MPa (S235)	400 MPa (ST 50)
Hardness of brazing deposit when resurfacing: about 110 HB	

#### Average chemical composition of all-weld-metal (%)

Cu	Zn	Si	Sn
59	40	0,4	0,4

#### Diameters available, welding current, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,50	1000	10,0
3,00	1000	10,0
4,00	1000	10,0
5,00	1000	10,0
6,00	1000	10,0

## MT- Hartlot 1 F

### Flux-coated (brass) brazing rods

#### Standard designation

EN ISO 1044	Cu 303
AWS/ASME SFA-5.8	RB CuZn-A
Material No.	2.0367

#### Main fields of application

MT-Hartlot 1F are particularly desoxidizing and degassing multipurpose brazing alloys of outstanding properties for high-quality brazing in automotive construction, in the bicycle and motorcycle industry, in fitting and instrument construction, plumbing craft, repair shops, etc. Suitable for brazing steel, cast iron malleable cast steel, red bronze, tin bronze and copper, for hardfacing sliding and wearing surfaces and for joining brass, bronze, copper and copper alloys.

#### Physical properties (typical values)

Working temperature	Solidus-liquidus-temperature [°C]	Density [g/cm <sup>3</sup> ]
900	870/890	8,4

#### Tensile strength of the brazed (typical values)

350 MPa (S235)	400 MPa (ST 50)
Hardness of brazing deposit when resurfacing: about 110 HB	

#### Average chemical composition of all-weld-metal (%)

Cu	Zn
Bal.	38

#### Diameters, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
2,00	500	5,0
2,50	500	5,0
3,00	500	5,0
4,00	500	5,0

## MT- Hartlot 2 F

**2.0711**

### Flux-coated newsilver solder

#### Standard designation

EN ISO 1044	Cu 305
Material No.	2.0711
AWS/ASME SFA-5.8	RB CuZn - D

#### Main base materials and fields of application

Brazing mild/low-alloy steels, malleable cast steel, cast iron, copper, nickel and nickel alloys, brazing open joints and gaps, e.g. in repair shops for vehicles, agricultural machinery, and construction engines, for use in locksmith's and artistic. Suitable for joints subjected to high stress.

#### Physical properties (typical values)

Working temperature	Solidus-liquidus-temperature [°C]	Density [g/cm <sup>3</sup> ]
910	890/920	8,7

#### Average chemical composition of all-weld-metal (%)

Cu	Zn	Ni
Bal.	40	10

#### Tensile strength of the brazed (typical values)

450 MPa (ST 37)	480 MPa (ST 50)
Hardness of brazing deposit when resurfacing: about 160 - 200 HB	

#### Diameters, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
2,00	500	5,0
2,50	500	5,0
3,00	500	5,0
4,00	500	5,0

## MT-CuAg

## 2.1211

Copper MIG/TIG wire for welding pure copper

**Standard designation**

EN ISO 24373	S Cu 1897
Material no.	2.1211

**Main fields of application**

Weldable copper grades, e.g. SE - Cu (2.0070), SW - Cu (2.0076), SF - Cu (2.0090), OF - Cu (2.0040)

**Mechanical and physical properties of all-weld-metal**

Tensile strength	MPa	210	235
Density	g/cm <sup>3</sup>	8,9	
El. conductivity	Sm/mm <sup>2</sup>	30	45
Solidus – temperature	C°	1070	
Liquidus – temperature	C°	1080	
Hardness	HB	45	50

**Average chemical composition of all-weld-metal (%)**

Cu	Ag	P	Mn
Bal.	1,0	0,02	0,1

**Gas types applicable TIG**  
**Gas types applicable MIG**

I 1  
I 1

**Diameters, unit weights**

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
3,00	1000	10,0
4,00	1000	10,0

**MIG welding wire**

Diameter 1,0mm 1,2mm

**Current/Polarity TIG**

= -

**Current/Polarity MIG**

= +

**Welding positions MIG acc.to EN ISO 6947**

PA, PB, PF

**Welding positions TIG acc.to EN ISO 6947**

PA, PB, PC, PE, PF

## MT- CuNi 30 Fe

## 2.0837

MIG/TIG welding wire made of copper nickel alloy suitable for the joining and surfacing of alloys of the same type with a nickel content of up to 30% as well as different non-ferrous alloys and steels.

### Standard designation

EN ISO 24373-A	S Cu 7158
Material No.	2.0837
AWS/ASME SFA-5.7	ER - CuNi

### Main fields of application

2.0872	CuNi 10 Fe	2.0882	CuNi 30 Fe
2.0878	CuNi 20 Fe	2.0842	CuNi 44
2.0830	CuNi 25		

The weld metal which is resistant to seawater allows the use of these wires in the shipbuilding, at petroleum refineries, in the food industry and Generally in corrosion-resistant apparatus and container construction.

### Mechanical properties of all-weld-metal (typical values)

Gas shield			I1 untreated
Thermal treatment			+20°C
Test temperature	[°C]		
0,2 %-yield strength R <sub>p0,2</sub>	MPa		240
Tensile strength R <sub>m</sub>	MPa		390
Elongation A <sub>5</sub>	[%]		30
Impact strength A <sub>v</sub>	[J]		100
Brinell-hardness HB 10/1000			100

### Average chemical composition of all-weld-metal (%)

Ni	C	Cu	Fe	Mn	Si	Ti
30	0,02	rest	0,6	1,0	0,25	0,3

### Gas types applicable TIG Gas types applicable MIG

I 1-I 3  
I 1

### Diameters, unit weights

Diameter [mm]	Length [mm]	kgs per box [kg]
1,60	1000	10,0
2,00	1000	10,0
2,40	1000	10,0
3,00	1000	10,0

### MIG welding wire

Diameter

1,0mm

1,2mm

### Current/Polarity TIG

= -

### Current/Polarity MIG

= +

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF

### Welding positions TIG acc.to EN ISO 6947

PA, PB, PC, PE, PF

## Flux cored wires

7

<i>MTC-Name</i>		<i>Material No.</i>	<i>AWS</i>	<i>Page</i>
MIG	MT-FD 308 L	1.4316	E308 LT – 1-4	7.01
MIG	MT-FD 316 L	1.4430	E316 LT – 1-4	7.02
MIG	MT-FD 309 L	1.4332	E309 LT – 1-4	7.03
MIG	MT-FD 307	1.4370	E307 T – 0-4	7.04
MIG	MT-FD AP-o	-	-	7.05
MIG	MT-FD 55-o	-	-	7.06
MIG	MT-FD 59-o	-	-	7.07
MIG	MT-FD 60-o	-	-	7.08
MIG	MT-FD 61-o	-	-	7.09
MIG	MT-FD 64-o	-	-	7.10
MIG	MT-FD 65-o	-	-	7.11
MIG	MT-CS 300-o	-	-	7.12
MIG	MT-CS 400-o	-	-	7.13
MIG	MT-CS 600-o	-	-	7.14
MIG	MT-CS 600-G	-	-	7.15
MIG	MT-RD 100	-	E 71 TG	7.16
MIG	MT-RD 140	-	E 71 T1	7.17
MIG	MT-RD 310	-	E 70 T5	7.18
MIG	MT-FD 2-o	-	E 71 T-GS	7.19
MIG	MT-CS 70-o	-	E 70 T-4	7.20

## MT-FD 308 L

## 1.4316

Flux-cored MIG wire for welding stainless austenitic steels. Welding deposit of austenitic chrome nickel steel with extremely low carbon content, suitable for working temperatures of up to +350°C, non-scaling up to +800°C, cold-tough down to -40°C.

### Standard designation

EN ISO 17633-A	T 19 9 L R M21 2
Material No.	1.4316
AWS/ASME SFA-5.22	E 308 L T 1-4

### Main base metals

1.4306	X 2 CrNi 19 11	1.4301	X 5 CrNi 18 10
1.4306	G-X 2 CrNi 18 9	1.4303	X 5 CrNi 18 12
1.4311	X 2 CrNiN 18 10	1.4308	G-X 6 CrNi 18 9
1.4541	X 6 CrNiNb 18 10	1.4319	X 5 CrNi 18 7
1.4550	X 6 CrNiNb 18 10	1.4310	X 12 CrNi 17 7
1.4552	G-X 5 CrNiNb 18 9		

### Gas types applicable MIG

M 21

### Mechanical properties of all-weld-metal (typical values)

M 21 according to DIN 32 526 (20-25l/min.)			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>270
Tensile strength	R <sub>m</sub>	MPa	>550
Elongation	A <sub>5</sub>	[%]	>30
Impact strength	A <sub>v</sub>	[J]	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Cr	Ni
0,04	≤1,2	2,0	0,03	0,025	18,0-21,0	9,0-11,0

### Approvals

TÜV, CE

### Diameters and spool types available welding current

Diameter [mm]	Amperage [A]	Voltage [V]
0,90	100-200	24-30
1,20	150-250	25-32

Plastic spool D-300 with 12,5 kg

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity MIG

= +



## MT-FD 316 L

## 1.4430

Flux-cored MIG wire for welding stainless austenitic steels. Welding deposit of austenitic chrome nickel molybdenum steel with extremely low carbon content, suitable for working temperatures of up to +400°C, cold-tough down to -40°C.

### Standard designation

EN ISO 17633-A	T 19 12 3 L R M21 2
Material No.	1.4430
AWS/ASME SFA-5.22	E 316 L T 1-4

### Main base metals

1.4404	X 2 CrNiMo 17 13 2	1.4571	X 6 CrNiMoTi 17 12 2
1.4404	G-X 2 CrNiMo 18 10	1.4573	X 10 CrNiMoTi 18 12
1.4406	X 2 CrNiMoN 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2
1.4429	X 2 CrNiMoN 17 13 3	1.4581	G-X 5 CrNiMoNb 18 10
1.4435	X 2 CrNiMo 18 14 3	1.4583	X 10 CrNiMoNb 18 12
1.4401	X 5 CrNiMo 17 12 2	1.4420	X 5 CrNiMo 18 11
1.4408	G-X CrNiMo 18 10	1.4436	X 5 CrNiMo 17 13 3

### Gas types applicable MIG

M 21

### Mechanical properties of all-weld-metal (typical values)

<b>M 21 according to DIN 32 526 (20-25l/min.)</b>			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>295
Tensile strength	R <sub>m</sub>	MPa	>580
Elongation	A <sub>5</sub>	[%]	>30
Impact strength	A <sub>v</sub>	[J]	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Cr	Ni	Mo
0,04	≤1,2	2,0	0,03	0,025	17,0-20,0	10,0-13,0	2,5-3,0

### Approvals

TÜV, CE

### Diameters and spool types available welding current

Diameter [mm]	Amperage [A]	Voltage [V]
0,90	100-200	24-30
1,20	150-250	25-32

Plastic spool D-300 with 12,5 kg

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity MIG

= +

## MT-FD 309 L

## 1.4332

Flux-cored MIG wire for joining stainless steels and mild steels and for welding buffer layers. Welding deposit of austenitic chrome nickel steel with very low carbon content, suitable for working temperatures of up to +300°C.

### Standard designation

EN ISO 17633-A	T 23 12 L RM2
Material No.	1.4332
AWS/ASME SFA-5.22	E 309 L T 1-4

### Main base metals

1.4301 1.4828  
1.4713 1.4878  
1.4724

To H-I - H-III, St E 355 as well as any other material also covered by VDTÜV data sheet No.1000

### Gas types applicable MIG

M 21

### Mechanical properties of all-weld-metal (typical values)

M 21 according to DIN 32 526 (20-25l/min.)			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>295
Tensile strength	R <sub>m</sub>	MPa	>580
Elongation	A <sub>5</sub>	[%]	>30
Impact strength	A <sub>v</sub>	[J]	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	P	S	Cr	Ni
0,04	≤1,2	2,5	0,03	0,025	22,0-25,0	11,0-14,0

### Application notes

Flux-cored wire for joining high-alloy to mild steels and for welding buffer layers.

### Approvals

TÜV ,CE

### Diameters and spool types available welding current

Diameter [mm]	Amperage [A]	Voltage [V]
0,90	100-200	24-30
1,20	150-250	25-32

Plastic spool D-300 with 2,5 kg

### Welding positions acc.to EN ISO 6947

PA, PB, PC, PF

### Current/Polarity MIG

= +

## MT-FD 307

## 1.4370

Flux-cored MIG wire for welding dissimilar steels. Welding deposit of austenitic chrome nickel manganese steel, suitable for working temperatures of up to +300°C, non-scaling up to +850°C.

### Standard designation

EN ISO 17633-A	T 18 8 Mn R M3
Material No.	1.4370
AWS/ASME SFA - 5.22	E 307 T 0-4

### Main base metals

Dissimilar steels (welded joints between austenitic and ferritic steels), highly carburized and difficultly weldable steels, high manganese steels, e.g. X 120 Mn 12 (1.3401), buffer layers for hardfacings.

### Mechanical properties of all-weld-metal (typical values)

<b>M21 acc. to DIN 32526 (20-25 l/min).</b>			
<b>The analyses and properties as mentioned below were drawn from test welds performed under M21 gas shield.</b>			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	400
Tensile strength	R <sub>m</sub>	MPa	700
Elongation	A <sub>5</sub>	[%]	38
Impact strength	ISO V 20°C	[J/cm <sup>2</sup> ]	140
	ISO V 60°C	[J/cm <sup>2</sup> ]	100

### Average chemical composition of all-weld-metal (%)

C	Mn	Si	Cr	Ni
0,10	6,0	0,9	19,0	9,5

### Gas types applicable MIG

M 21

### Diameters and spool types available welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	150-190	24-28
1,60	200-250	25-32

Basket spool K-300 with 15,0 kg

### Welding positions acc.to EN ISO 6947

PA, PB

### Current/Polarity MIG

= +

## MT-FD AP-o

Open-arc flux-cored wire for hardfacing and joint-welding. Work-hardenable welding deposit of austenitic chrome-manganese steel.

### Standard designation

EN ISO 14700	T Fe 9
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### Mechanical properties

1. layer	260 HB-Brinell
2. layer	230 HB-Brinell
3. layer	210 HB-Brinell

After work-hardening, hardness can elongation increased from 250 HB to about 500-520 HB.

### Average chemical composition of all-weld-metal (%)

C	Mn	Si	Cr	Ni
0,5	16,0	0,4	14,0	1,2

### Application notes

MT-FD AP-o is designed for wear resistant hardfacings on rails, garbage disintegrators, digging teeth, dredger bolts, revolving furnace collars, blast furnace cones, and ore crusher working parts.

### Welding properties

The weld-metal is rust-proof, non-magnetic and ductile and therefore also suitable for joining high manganese steels.

### Diameters and spool types available welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15,0 kg

### Current/Polarity MIG

= +

## MT-FD 55-o

Special open-arc flux-cored wire for hardfacing on parts subjected to abrasive wear.

### Standard designation

EN ISO 14700	T Z Fe 16
--------------	-----------

### Mechanical properties

1. layer	50 HRC-Rockwell
2. layer	52 HRC-Rockwell
3. layer	54 HRC-Rockwell

### Average chemical composition of all-weld-metal (%)

C	Mn	Si	Cr
1,5	2,0	1,7	20,0

### Application

MT-FD 55-o is a special stainless steel flux-cored wire containing 15% Cr. It is designed for hardfacing on parts which are subjected to strong abrasive wear such as conveyer worms, crushing rolls, pump parts, mixing impellers, stirring arms, and strippers as used in mines, steel mills, construction industry and agriculture.

### Welding properties

The stainless weld-metal consists of special chrome carbides in an austenitic matrix. It can be machined by grinding. MT-FD 55-o can also be welded at low current without any risk of the arc breaking off. Only few spattering and fume production.

### Special notes

The first weld deposit on the base material should be very thin, as there will be only little blending. Do not deposit more than three layers and no layer thicker than 10 mm.

### Diameters, welding current, unit weights

Diameter [mm]	Amperage [A]	Voltage [V]
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15 kg

### Current/Polarity MIG

= +

## MT-FD 59-o

Special open-arc flux-cored welding wire with high Cr-content, suitable for welds subjected to abrasive wear.

### Standard designation

EN ISO 14700	T Z Fe 14
--------------	-----------

### Mechanical properties

1. layer	56 HRC-Rockwell
2. layer	60 HRC-Rockwell
3. layer	62 HRC-Rockwell

### Average chemical composition of all-weld-metal (%)

C	Mn	Si	Cr
4,8	1,0	1,2	27,0

### Application

MT-FD 59-o is a special stainless steel flux-cored wire containing 27% Cr, designed for hardfacing on parts which are subject to strong abrasive wear, such as conveyor worms, crushing rolls, rolls, pump parts, mixing impellers, stirring arms, and strippers as used in mines, steel mills, construction industry, and agriculture.

### Welding properties

The stainless weld-metal is composed of special chrome carbides in an austenitic matrix. It can be machined by grinding. MT-FD 59-o can also be welded at low current without any risk of the electric arc breaking off. Only little spatter and fume is produced.

### Special notes

The first weld deposit on the base material should be very thin, as there will be only little blending. Do not deposit more than three layers and no layer thicker than 10 mm.

### Diameters, welding current, unit weights

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	150-190	24-28
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15 kg

### Current/Polarity MIG

= +

## MT-FD 60-o

Open-arc stainless steel flux-cored wire for welds subjected to mineral wear. Weld metal of chrome niob hard alloy.

### Standard designation

EN ISO 14700	T Fe 15
--------------	---------

### Mechanical properties

1. layer	56 HRC-Rockwell
2. layer	60 HRC-Rockwell
3. layer	63 HRC-Rockwell

### Average chemical composition of all-weld-metal (%)

C	Mn	Si	Cr	Nb
5,0	1,8	1,5	22,0	7,0

### Application notes

MT-FD 60-o is a Cr-Nb-alloyed flux-cored wire for hardfacing on parts subjected to friction wear and abrasive mineral wear. The stainless weld metal can only be machined with grinding tools. Suitable for use on mixing impellers, cement and concrete pumps, slag crushers, sandblasting equipment and dredging buckets.

### Welding properties

Neat, slagfree weld pool; only little spatter and fume is produced 97% recovery.

### Special properties

Optimum wear resistance is achieved already with the first deposit.

### Diameters, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15 kg

### Current/Polarity MIG

= +

## MT-FD 61-o

Open-arc stainless steel flux-cored wire for welds subjected to mineral wear. Weld metal of chrome niob bor alloy.

### Standard designation

EN ISO 14700	T Z Fe 15
--------------	-----------

### Mechanical properties

1. layer	58 HRC-Rockwell
2. layer	62 HRC-Rockwell
3. layer	65 HRC-Rockwell

### Average chemical composition of all-weld-metal (%)

C	Mn	Si	Cr	Nb	B
5,0	1,8	1,5	22,0	7,0	3,5

### Application notes

MT-FD 61-o is a Cr-Nb-B-alloyed flux-cored wire for hardfacing on parts subjected to friction wear and abrasive mineral wear. The stainless weld metal can only be machined with grinding tools. Suitable for use on mixing impellers, cement and concrete pumps, slag crushers, sandblasting equipment and dredging buckets.

### Welding properties

Neat, slagfree weld pool; only little spatter and fume is produced 97% recovery.

### Special notes

Optimum wear resistance is achieved already with the first deposit.

### Diameters, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15 kg

### Current/Polarity MIG

= +



## MT-FD 64-o

Open-arc flux-cored wire that deposits a very hard martensitic micro structure with carbides.

### Standard designation

EN ISO 14700	T Fe 16
--------------	---------

### Mechanical properties

1. layer	59 HRC-Rockwell
2. layer	61 HRC-Rockwell
3. layer	65 HRC-Rockwell

### Average chemical composition of all-weld-metal (%)

C	Cr	V	W	Mn	Si	B
4,5	24,0	0,8	0,8	1,6	1,0	1,0

### Application

The deposit is resistant against heavy mineral abrasion at higher temperatures. This wire can be used for one layer welding without loss of hardness. For mineral and brick industry, screws and van – blades.

### Diameters, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	150-190	24-28
1,60	200-250	25-32
2,00	300-400	26-32

Basket spool K-300 with 15 kg

### Current/Polarity MIG

= +

## MT-FD 65-o

**Stainless steel open-arc flux-cored wire for welds subjected to abrasive wear at high temperature. Welding deposit of chrome niob molybdenum tungsten hard alloy.**

### Standard designation

EN ISO 14700	T Fe 16
--------------	---------

### Mechanical properties

1. layer	59 HRC-Rockwell
2. layer	61 HRC-Rockwell
3. layer	65 HRC-Rockwell

at 600°C: 40 HRC-Rockwell

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Cr	Mo	Nb	W	V
5,5	1,3	1,4	22,0	7,0	7,0	2,0	1,0

### Application

MT-FD 65-o is a flux-cored welding wire for extremely hard surfacing welds which will resist to extremely strong wear at working temperatures of up to +600°C. It's carbidic, ledeburitic structure and, in particular, the uniformly distributed special carbides perform much higher wear resistance than any alloy with pure chrome carbides can do. Suitable for welding conveyor worms, masticators, crushers, blast furnace cones, cement and concrete pumps, mixing impellers, toothed rollers, and grates in ore mining equipment.

### Welding properties

Neat, slagfree weld pool: only little spatter and fume is produced. 97% recovery.

### Special notes

Maximum hardness is almost achieved with a single deposit of 3-4 mm thickness.

### Diameters, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15 kg

### Current/Polarity MIG

= +

## MT-CS 300-o

Low-alloy open-arc flux-cored wire for wear resistant hardfacings which can be machined with cutting tools after welding.

**Standard designation**

EN ISO 14700	T Fe 1
--------------	--------

**Mechanical properties**

1. layer	29 HRc
2. layer	32 HRc
3. layer	34 HRc

**Average chemical composition of all-weld-metal (%)**

C	Mn	Si	Cr	Mo
0,10	2,0	0,5	2,5	0,3

**Application notes**

This wire produces a crack-free wear resistant deposit with a hardness in the range of 29 – 34 HRc dependent upon parent material dilution and number layers. It is particularly suitable for conditions of moderate abrasion and friction, coupled with resistance to heavy impact. Items suitable for surfacing include: Caterpillar tracks, roller guides, slideways, track wheels.

**Welding properties**

Quiet, stable arc, no spatter and only little fume is produced, fine-scaled and porefree seam aspect. Recovery is about 90%

**Special notes**

For the final deposit, the interpass temperature should not exceed +250°C.

**Diameters, welding current,**

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	140-250	23-27
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15 Kg

**Current/Polarity MIG**

= +

## MT-CS 400-o

Low-alloy open-arc flux-cored wire for wear resistant hardfacings which can be machined with cutting tools after welding.

### Standard designation

EN ISO 14700	T Fe 1
--------------	--------

### Mechanical properties

1. layer	38 HRC
2. layer	40 HRC
3. layer	42 HRC

### Average chemical composition of all-weld-metal (%)

C	Mn	Si	Cr	Mo
0,2	2,4	0,8	3,1	0,5

### Application

MT-CS 400-o is suitable for hardfacing on parts subjected to impact and shock stress such as impellers, rope pulleys (padlock sheaves), wheel rims, slides, and crane wheels. The martensitic welding deposit can still be machined with carbide tools.

### Welding properties

Quiet, stable arc, no spatter and only little fume is produced, finescaled and porefree seam aspect. Recovery is abt. 86%.

### Special notes

For the final deposit, the interpass temperature should not exceed +250°C.

### Diameter and spool-types available, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	140-250	23-27
1,60	200-300	24-28
2,40	250-400	25-32
2,80	300-500	26-32

Basket spool K-300 with 15 Kg

### Current/Polarity MIG

= +

## MT-CS 600-o

**Open-arc flux-cored wire for welds resisting to compressive and abrasive wear.**

**Standard designation**

EN ISO 14700	T Fe 3
--------------	--------

**Mechanical properties**

1. layer	45 HRC-Rockwell
2. layer	56 HRC-Rockwell
3. layer	57 HRC-Rockwell

**Average chemical composition of all-weld-metal (%)**

C	Mn	Si	Cr	Mo	Al
0,8	2,0	0,8	2,5	0,2	1,7

**Application**

Due to it's extreme hardness and still sufficient tenacity, MT-CS 600-o is used for repair and maintenance welding on machines and parts subjected to compressive stress, abrasion and slight impact wear. Hardfacings are welded on strippers, gravel pumps, crusher ridges, and crushing rolls.

**Welding property**

Stable arc, good slag removal. 90% recovery

**Special notes**

Preheat to +200°C - +300°C any base metal sensitive to hardness increase, if necessary. Let cool slowly.

**Diameter and spool-types available, welding current**

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	160 – 240	26-30
1,60	200 – 350	28-30
2,00	240 – 450	29-32
2,80	300 – 550	30-32

Plastic spool D-300 with 13 Kg

**Current/Polarity MIG**

**= +**

## MT-RD 600-G

Metalcored flux-cored wire for hardfacing.

**Standard designation**

EN ISO 14700	T Fe 2
--------------	--------

**Mechanical properties**

1. layer	50 HRC-Rockwell
2. layer	54 HRC-Rockwell
3. layer	57 HRC-Rockwell

**Average chemical composition of all-weld-metal (%)**

C	Cr	Mo	Mn	Si
0,5	5,5	0,6	1,5	0,6

**Application notes**

Tubular Cr-Mo alloyed, metalcored flux-cored wire for wear-resistant surfacing up to +700°C. With steels with low weldability, depositing a cushion layer with MT-RD 310 is recommended.

**Gas types applicable MIG**

M 21

**Diameter and spool-types available, welding current**

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	160 – 260	18-26
1,60	180 – 300	20-29

Basket spool K-300 with 16 Kg

**Current/Polarity MIG**

= +

## MT-RD 100

Tubular metal-cored wire.

### Standard designation

EN ISO 17632-A	T 46 6 MM 1 H5/ T 42 5 M C1 H5
AWS/ASME SFA-5.36	E70T15-M21A8-CS1-H4/E70T15-C1A6-CS1-H4

### Main base metals

S 185, S 235JRG2, S235S, 235J2G3, P265S, P235TR1, P235TR2, 265TR1, P265TR2, L210GA, P235GH, 195GH, L245MB, C21, L245NB, L245GA, P275N, P280GH, L290MB, P295GH, L290NB, S355NL, P355N, P355NL1, S355J2G3, P245GH, GS 38, P265GH, C22.3, GS45, P215NL, P255QL, P265NL, P250GH, C22.8, S275JR, P275SL, S275J2G3, S275NL, GP240GH, X42, P305GH, P355GH, S355N, L360MB, L360NB,

### Gas types applicable MIG

M21-M33, C1

### Mechanical properties of all-weld-metal (typical values)

Gas shield M21			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>420
Tensile strength	R <sub>m</sub>	MPa	500-640
Elongation	A <sub>5</sub>	[%]	>20
Impact strength		[J]	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	Mo	Cu
0,06	0,6	2,0	0,2	0,3

### Approvals

TÜV, DB, CE

### Diameter and spool-types available, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,00	40-270	11-32
1,20	160-260	18-26
1,60	180-300	20-29

Basket spool K-300 with 16 Kg

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF, PC, PD, PE, PG

### Current/Polarity MIG

= +

## MT-RD 140

Tubular flux-cored wire.

### Standard designation

EN ISO 17632-A	T 46 4 PM 1 H5/ T 46 2 P C 1 H5
AWS/ASME SFA-5.36	E71T-1-M21A4-CS1-DH4/E71T1-C1A2-CS1-DH4

### Main base metals

S 185, S 235JRG2, S235S, 235J2G3, P245GH, GS 38, P265GH, C22.3, P265S, P235TR1, P235TR2, 265TR1, GS45, P215NL, P255QL, P265NL, P265TR2, L210GA, P235GH, 195GH, P250GH, C22.8, S275JR, P275SL, L245MB, C21, L245NB, L245GA, P275N S275J2G3, S275NL, GP240GH, P280GH, L290MB, P295GH, L290NB, X42, P305GH, P355GH, S355N, S355NL, P355N, P355NL1, S355J2G3 L360MB, L360NB,

### Gas types applicable

C 1, M21-M35

### Mechanical properties of all-weld-metals (typical values)

Gas shield M21			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>460
Tensile strength	R <sub>m</sub>	MPa	530-680
Elongation	A <sub>5</sub>	[%]	>20
Impact strength		[J]	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	max P	max S	Mo
0,06	0,5	2,0	0,022	0,025	0,2

### Approvals

TÜV, DB, CE

### Diameter and spool-types available, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,00	160-270	21-34
1,20	160-260	18-26
1,60	180-300	20-29

Basket spool K-300 with 16 Kg

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF, PC, PE, PG

### Current/Polarity MIG

= +



## MT-RD 310

Basic flux-cored wire.

### Standard designation

EN ISO 17632-A	T 42 4 B C 3 H5 / T 46 4 B M 3 H5
AWS/ASME SFA-5.36	E70T5-M21A4-CS1-H4/E70T5-C1A4-CS1-H4

### Main base metals

S 185, S 235JRG2, S235S, 235J2G3, P265S, P235TR1, P235TR2, 265TR1, P265TR2, L210GA, P235GH, 195GH, L245MB, C21, L245NB, L245GA, P275N, P280GH, L290MB, P295GH, L290NB, S355NL, P355N, P355NL1, S355J2G3, P245GH, GS 38, P265GH, C22.3, GS45, P215NL, P255QL, P265NL, P250GH, C22.8, S275JR, P275SL, S275J2G3, S275NL, GP240GH, X42, P305GH, P355GH, S355N, L360MB, L360NB,

### Gas types applicable

C 1, M21-M33

### Mechanical properties of all-weld-metals (typical values)

Gas shield M21			
0,2%-yield strength	R <sub>p0,2</sub>	MPa	>420
Tensile strength	R <sub>m</sub>	MPa	500-640
Elongation	A <sub>5</sub>	[%]	>20
Impact strength		[J]	

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	max P	max S
0,06	0,45	2,0	0,02	0,025

### Approvals

TÜV, DB, CE

### Diameter and spool-types available, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,00	80-250	15-25
1,20	160-260	18-26
1,60	180-300	20-29

Basket spool K-300 with 16 Kg

### Welding positions MIG acc.to EN ISO 6947

PA, PB

### Current/Polarity MIG

= +

## MT-FD 2 - o

An open-arc, flux cored, self shielded wire designed for single and multipass welding of mild and medium tensile steels, for all positions.

### Standard designation

EN ISO 17632-A	T 42 Z W N 1 H 15
AWS/ASME SFA-5.20	E 71 T-GS

### Main base metals

S185, S235, S275, S355  
P235GH, P265GH, P295GH,  
P355GH

### Mechanical properties of all-weld-metals (typical values)

0,2%-yield strength	R <sub>p0,2</sub>	MPa	470
Tensile strength	R <sub>m</sub>	MPa	570
Elongation	A <sub>5</sub>	[%]	24

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	max P	max S	Al
0,18	0,42	1,1	0,014	0,008	1,4

### Diameter available, unit weights

Diameter [mm]	Amperage [A]	Voltage [V]
0,90	30-120	14-17

Plastic spool D-200 with 4,5 Kg

### Welding positions MIG acc.to EN ISO 6947

PA, PB, PF, PC, PE, PG

### Current/Polarity MIG

= -

## MT-CS 70 - o

An open-arc, flux cored, self shielded wire designed for single and multipass welding of mild and medium tensile steels in the flat and horizontal-vertical positions.

### Standard designation

AWS/ASME SFA-5.20	E 70 T-4
EN ISO 17632-A	T 38 Z W N3

### Main base metals

S185, S235, S275, S355,  
P235GH, P265GH, P295GH,  
P355GH

### Mechanical properties of all-weld-metals (typical values)

0,2%-yield strength	R <sub>p0,2</sub>	MPa	520
Tensile strength	R <sub>m</sub>	MPa	610
Elongation	A <sub>5</sub>	[%]	18

### Average chemical composition of all-weld-metal (%)

C	Si	Mn	max P	max S	Al
0,20	0,2	0,6	0,02	0,01	1,3

### Diameter and spool-types available, welding current

Diameter [mm]	Amperage [A]	Voltage [V]
1,20	100-300	19-28
1,60	150-280	27-30
2,40	300-500	26-33

Basket spool K-300 with 15 Kg

### Welding positions MIG acc.to EN ISO 6947

PA, PB

### Current/Polarity MIG

= +

## **Approvals**

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### Stainless steel MIG/TIG

Quality	TÜV-MIG	TÜV-TIG	DB-MIG	DB-TIG	CE
MT-308 L	0,8 bis 1,6	1,0 bis 5,0	0,8 bis 1,6	1,6 bis 4,0	•
MT-316 L	0,8 bis 1,6	1,0 bis 5,0	0,8 bis 1,6	1,2 bis 4,0	•
MT-347	0,8 bis 1,6	1,6 bis 4,0	0,8 bis 1,6	1,6 bis 4,0	•
MT-318	0,8 bis 1,6	1,0 bis 5,0	0,8 bis 1,6	1,0 bis 4,0	•
MT-307	0,8 bis 1,6	1,0 bis 5,0	0,8 bis 1,6	1,0 bis 4,0	•
MT-309 L	0,8 bis 1,6	1,0 bis 5,0	-	-	•
MT-4462	0,8 bis 1,6	1,0 bis 4,0	0,8 bis 1,6	1,0 bis 4,0	•
MT-904 L	0,8 bis 1,2	1,6 bis 4,0	0,8 bis 1,2	1,6 bis 4,0	•

### Stainless steel SAW-Wire

Quality	TÜV	DB	CE
MT-308 L	•	-	•
MT-316 L	•	-	•
MT-347	•	-	•
MT-318	•	-	•

### Stainless steel Elektrode

Quality	TÜV	DB	CE
MT-308 L	2,0 bis 4,0	2,0 bis 4,0	•
MT-316 L	2,0 bis 4,0	2,0 bis 4,0	•
MT-347	2,0 bis 4,0	2,0 bis 4,0	•
MT-318	2,0 bis 4,0	2,0 bis 4,0	•
MT-312	-	1,6 bis 5,0	•
MT-309 Mo	2,0 bis 4,0	2,5 bis 4,0	•

### Mild steels and low-alloyed wire MIG/TIG

Quality	TÜV-MIG	TÜV-TIG	DB-MIG	DB-TIG	CE
MT-Mo	0,8 bis 1,6	1,0 bis 4,0	0,8 bis 1,6	1,0 bis 4,0	•
MT-5424	-	1,0 bis 4,0	-	1,0 bis 4,0	•
MT-CrMo 1	0,8 bis 1,6	0,8 bis 4,0	0,8 bis 1,6	-	•
MT-CrMo 2	0,8 bis 1,6	0,8 bis 4,0	0,8 bis 1,6	-	•
MT-WSG II	-	1,0 bis 4,0	-	1,2 bis 4,0	•
MT-SG 2 Ti	-	-	0,8 bis 1,6	-	•
MT-NiCu 1	0,8 bis 1,6	-	0,8 bis 1,6	-	•
MT-NiMo vk	-	-	0,8 bis 1,6	-	•
MT-NiMoCr	0,8 bis 1,2	-	1,0 bis 1,2	-	•
MT-NiMoCr 90	-	-	0,8 bis 1,6	-	•
MT-G III	-	1,5 bis 5,0	-	-	•
MT-2,5 Ni	0,8 bis 1,6	0,8 bis 4,0	0,8 bis 1,6	0,8 bis 4,0	•
MT-SG II	0,8 bis 1,6	-	0,8 bis 1,6	-	•
MT-SG III	0,8 bis 1,6	-	0,8 bis 1,6	-	•

(• Approval)  
(- no approval)

## Approvals page 2

### Aluminium Wire MIG/TIG

Quality	TÜV-MIG	TÜV-TIG	DB-MIG	DB-TIG	CE
MT-ALMg 4,5 MnZr	0,8 bis 1,6	1,6 bis 5,0	0,8 bis 1,6	1,6 bis 5,0	•
MT-ALMg 4,5 Mn	0,8 bis 1,6	1,6 bis 5,0	0,8 bis 1,6	1,6 bis 5,0	•
MT-ALMg 5	0,8 bis 1,6	1,6 bis 5,0	0,8 bis 1,6	0,8 bis 4,0	•
MT-AISi 5	0,8 bis 1,6	1,6 bis 5,0	0,8 bis 1,6	1,6 bis 5,0	•
MT-AISi 12	-	-	0,8 bis 1,6	1,6 bis 5,0	•

### Special alloys

Quality	TÜV-MIG	TÜV-TIG	DB-MIG	CE
MT-82	0,8 bis 1,6	1,2 bis 3,0	-	•
MT-Nicro 625	0,8 bis 1,6	1,0 bis 4,0	-	•
MT-Nickel	0,8 bis 1,6	1,0 bis 4,0	-	•
MT-NiCu 30	0,8 bis 1,6	1,0 bis 4,0	-	•
MT-4607	0,8 bis 1,6	0,8 bis 3,2	-	•
MT-NiFe	-	-	1,0 bis 1,2	-

### Mild steels and low-alloyed elektrodes

Quality	TÜV	DB	CE
MT Mo	2,5 bis 5,0	-	•
MT RC 3	2,0 bis 4,0	2,5 bis 4,0	•
MT RC 3 blau	2,0 bis 4,0	2,5 bis 4,0	•
MT RR 6	2,0 bis 6,0	2,0 bis 6,0	•
MT RR C 6	2,0 bis 4,0	2,5 bis 4,0	•
MT B 10	2,5 bis 6,0	2,5 bis 6,0	•
MT-BR 10	2,5 bis 5,0	2,5 bis 5,0	•
MT CrMo 1	-	-	-
MT RR 6 gelb	2,0 bis 6,0	2,5 bis 6,0	•
MT-RR B 7	2,5 bis 4,0	2,5 bis 4,0	•
MT-RR 11	-	-	-
MT RR C 6 blau	2,0 bis 4,0	2,5 bis 4,0	•

(• Approval)  
(- no approval)

## Approvals page 3

### Fluxcored wire

<b>Qualität</b>	<b>TÜV-MIG</b>	<b>DB-MIG</b>	<b>CE</b>
MT-FD 316 L	0,9 bis 1,6	-	•
MT-FD 309 L	0,9 bis 1,6	-	•
MT-FD 309 MoL	0,9 bis 1,6	-	•
MT-FD 308 L	0,9 bis 1,6	-	•
MT-RD 100	1,2 bis 1,6	1,2 bis 1,6	•
MT-RD 140	1,0 bis 1,6	1,0 bis 1,6	•
MT-RD 310	1,2 bis 2,0	1,2 bis 2,0	•

(• Approval)  
(- no approval)