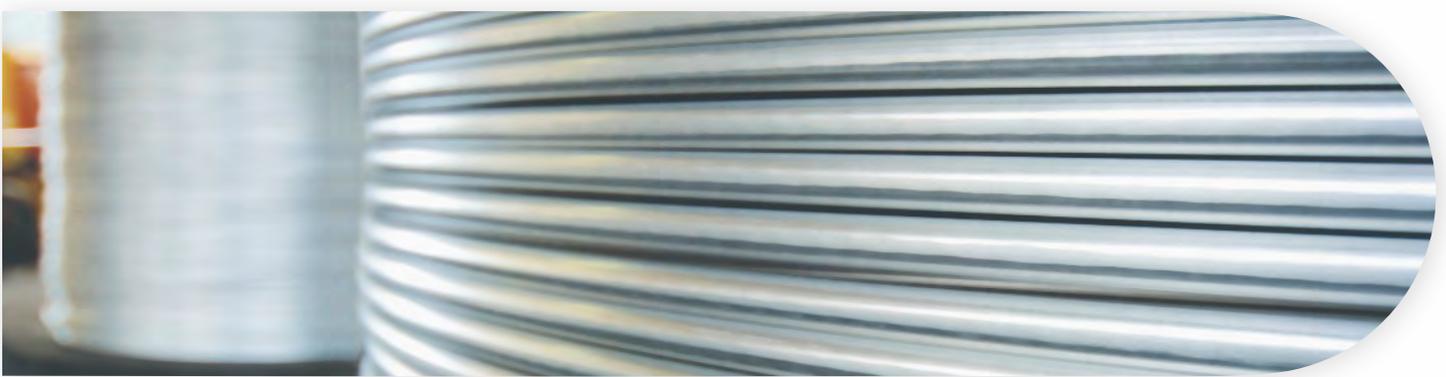




we wire the world

en



GUTMANN ALUMINIUM DRAHT GMBH



2

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GUTMANN ALUMINIUM DRAHT GMBH	4
Product areas	5
ROUND WIRES	6 - 7
ROUND RODS AND BARS	8 - 9
DRAWN PROFILE RODS	10 - 11
Al-Alloys - Chemical composition	12 - 13
Al-Alloys - Conditions	14 - 15
Heat Treatment - Overview of the conventional conditions	16
Weight per metre and cross-section table / Diameter Tolerances	17
Standard spools and dimensions	18
Packing formats	19

GUTMANN ALUMINIUM DRAHT GMBH (GAD) is one of the leading producers of drawn wire and profiles made of aluminium and wrought aluminium alloys. Over 40 different aluminium alloys are available. The range of wire diameters that can be produced is from 0.08 to 25 mm.

In addition to the automotive industry, GAD's main markets are the commercial vehicle, aviation and food industries, medicine and fastening industry, electrical engineering and mechanical engineering.

GAD and its products are represented on all five continents with a constantly increasing export rate.

Our shareholders are Gutmann & Gutmann GmbH (51%) and GUTMANN AG (49%).

Manage Excellence – Act to Sustain

To master these challenges GUTMANN ALUMINIUM DRAHT takes advantage of modern methods to raise the creativity and potential of our employees to satisfy our customers needs.

We have different formats and techniques to let our employees grow. These are the open space technology, world cafe, dynamic facilitation, Theory U, Thinking Circle and others.

All these methods of thoughtful organisation and process design goes in correlation with the performance of our quality standards and management tools. Our belief is if we facilitate and build up self-responsibility of all our employees we will generate the best customer service.

Our process-oriented management system is certified as per DIN EN ISO 9001:2015, IATF 16949 and the environmental management system is covered by DIN EN ISO 14001:2015.

Furthermore we take care about our energy management which is certified according to DIN EN ISO 50001.

We can provide product specific management systems like DIN EN ISO 22000 for our teabag wire and clip wire and DB/TÜV approvals for the welding wire.



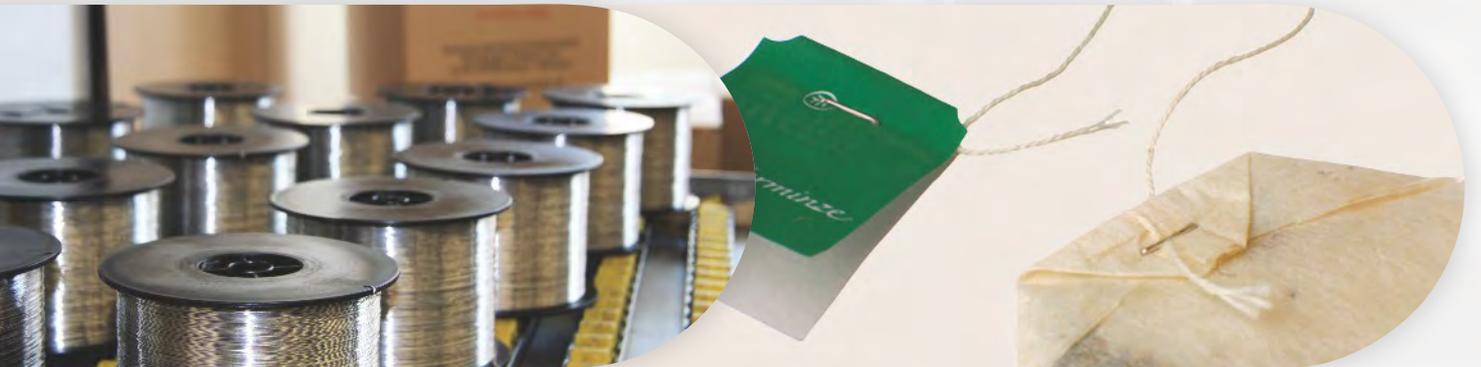
There is always
a special place
to reflect upon
something ...

... or to join
the others
sitting in a
circle to be
involved in
a solution
process.



6

Calmness fulfilled



ROUND WIRES



Dimension

0.08 mm - 25 mm

Alloy

1000 series, 2000 series, 3000 series,
4000 series, 5000 series, 6000 series,
7000 series

Packaging

Coils



Spools

from K 80 to E 630



Rings



Metal- or cardboard formers



Fiber Drums



Your advantages, thanks to DRAWN GUTMANN ALUMINIUM ROUND WIRES

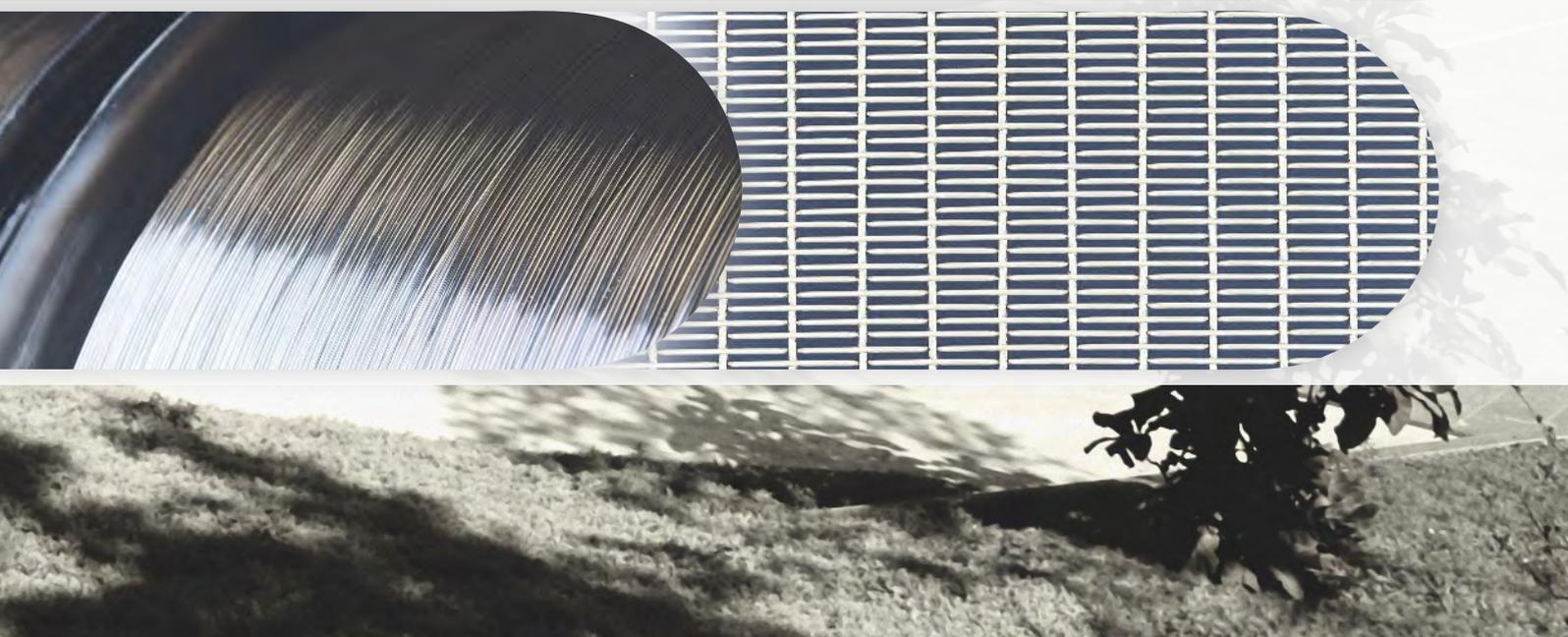
- Wide variety of alloys
- Size range from 0.08 mm - 25 mm
- Unique corporate culture
- Highly motivated staff

Areas of application

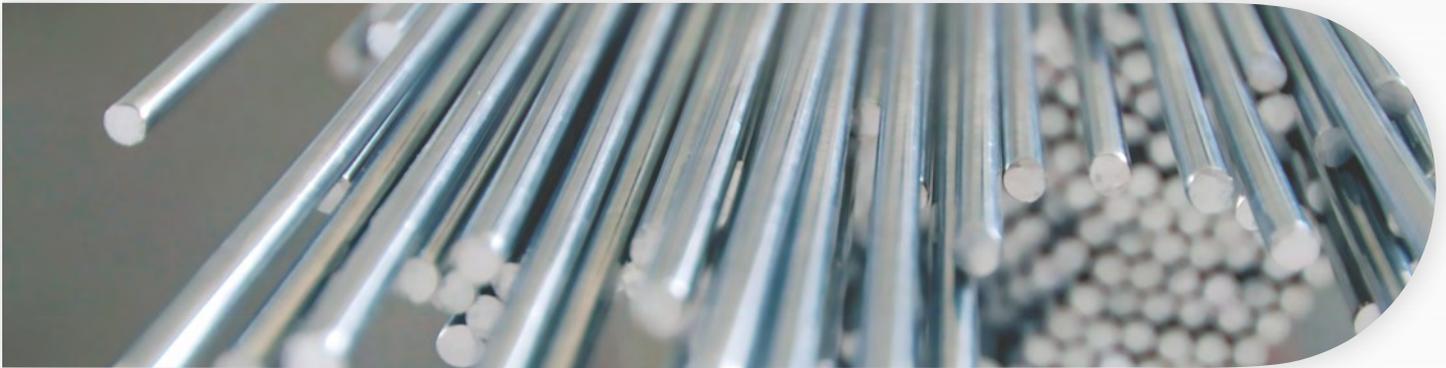
Wire for cold heading parts, rivets and fasteners, electrical applications for cables and busbars, wire for food industry, wire for architecture, bending parts and fences, fine wire for instrument strings, for weaving and braiding, wire for knitting needles, zips, 3D applications and much more



8 Beauty through precision



ROUND RODS AND BARS



Dimension

1.6 mm - 15 mm

Alloy

1000 series, 2000 series, 3000 series,
4000 series, 5000 series, 6000 series,
7000 series

Packaging

Wooden boxes



Length

200 mm - 6000 mm

Your advantages, thanks to DRAWN GUTMANN ALUMINIUM ROUND RODS

- Stripped and sawn ends to match your requirements
- One or both ends can be chamfered/bevelled
- Additional cleaning for small sizes of up to 4 mm
- Flat bars can be supplied

Areas of application

Medical products, bending parts, machine processing, wire for cold heading parts, rivets and fasteners, various solutions for the automotive industry, aerials and much more applications



10 Strength & endurance



DRAWN PROFILE RODS



Dimension

various forms from **2.7 g/m** to **> 700 g/m**

Alloy

1000 series, **3000** series, **6000** series;
other alloys on request

Packaging

Wooden boxes

Our wooden boxes
are heat treated
Sea freight solution
possible



Wooden coils

According
to your needs



Coils

According
to your needs



Your advantages, thanks to DRAWN ALUMINIUM PROFILE RODS

- Small sizes starting from 1 x 1 mm with precise tolerances (weight: 2.7 g/m up to over 700 g/m)
- Great alloy diversity with a wide variety of mechanical properties
- Low tool costs
- Samples and small quantities can be delivered extremely quickly
- Flexible delivery methods; cuts and spooled profiles also available
- ISO-certified company: IATF 16949, DIN EN ISO 9001:2015 and 14001:2015
- Laboratory tests, such as mechanical tests, metallographic studies and spectral analyses
- Special heat treatment of the profiles makes it possible to create different mechanical attributes
- Length-optimised bars to reduce scrap metal
- One stop solution: profiles, sawn sections (cut lengths) and welding wire
- We can supply aluminium flat bars

Areas of application

"Plate and bar" heat exchangers (Fields of application of these heat exchangers: tractors, trains, trucks, construction machinery, ships and industrial vehicles in general)

Al-Alloys

Chemical composition

numerical chemical symbols	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ga	V	Ti	other		remarks
												single	total	
series 1000														
EN AW-1050A, 1350 EN AW-Al99.5	0.25	0.4	0.05	0.05	0.05	---	---	0.07	---	---	0.05	0.03	---	
EN AW-1070A, 1370 EN AW-Al99.7	0.2	0.25	0.03	0.03	0.03	---	---	0.07	---	---	0.03	0.03	---	
EN AW-1080A EN AW-Al99.8(A)	0.15	0.15	0.03	0.02	0.02	---	---	0.06	0.03	---	0.02	0.02	---	
EN AW-1090 EN AW-Al99.90	0.07	0.07	0.02	0.01	0.01	---	---	0.03	0.03	0.05	0.01	0.01	---	
EN AW-1098 EN AW-Al99.98	0.01	0.006	0.003	---	---	---	---	0.015	---	---	0.003	0.003	---	
EN AW-1100 EN AW-Al99.0	---	---	0.05 - 0.2	0.05	---	---	---	0.1	---	---	---	---	---	
EN AW-1370 EN AW-EAl-99.7	0.1	0.25	0.02	0.01	0.02	0.01	---	0.04	0.03	---	---	0.02	0.01	0.02 B; 0.02 V+Ti
EN AW-131050 EN AW-AlFeMg	0.1	0.5 - 0.8	0.035	0.01	0.08 - 0.25	0.007	---	0.05	---	0.007	0.02	0.03	0.01	0.015 B
series 2000														
EN AW-2011 EN AW-AlCu6BiPb	0.4	0.7	5.0 - 6.0	---	---	---	---	0.3	---	---	---	0.05	0.15	0.20 - 0.60 Pb + Bi
EN AW-2017A EN AW-AlCu4MgSi(A)	0.2 - 0.8	0.7	3.5 - 4.5	0.4 - 1.0	0.4 - 1.0	0.1	---	0.25	---	---	---	0.05	0.15	0.25 Zr+Ti
EN AW-2024 EN AW-AlCu4Mg1	0.5	0.5	3.8 - 4.9	0.3 - 0.9	1.2 - 1.8	0.1	---	0.25	---	---	0.15	0.05	0.15	
EN AW-2117 EN AW-AlCu2.5Mg	0.8	0.7	2.2 - 3.0	0.2	0.2 - 0.5	0.1	---	0.25	---	---	---	0.05	0.15	
series 3000														
EN AW-3003 EN AW-AlMn1Cu	0.6	0.7	0.05 - 0.2	1.0 - 1.5	---	---	---	0.1	---	---	---	0.05	0.15	
EN AW-3103 EN AW-AlMn1	0.5	0.7	0.1	0.9 - 1.5	0.3	0.1	---	0.2	---	---	---	0.05	0.15	0.1 Zr+Ti
series 4000														
EN AW-4018 EN AW-AlSi7Mg	6.5 - 7.5	0.2	0.05	0.1	0.5 - 0.8	---	---	0.1	---	---	0.2	---	---	0.0003 Be
EN AW-4043A EN AW-AlSi5(A)	4.5 - 6.0	0.6	0.3	0.15	0.2	---	---	0.1	---	---	0.15	0.05	0.15	
EN AW-4046 EN AW-AlSi10Mg	9.0 - 11.0	0.5	0.03	0.4	0.2 - 0.5	---	---	0.1	---	---	0.15	---	---	0.0003 Be
EN AW-4047A EN AW-AlSi12(A)	11.0 - 13.0	0.6	0.3	0.15	0.1	---	---	0.2	---	---	0.15	0.05	0.15	

Al-Alloys

Chemical composition

numerical chemical symbols	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ga	V	Ti	other		remarks
												single	total	
series 5000														
EN AW-5005A EN AW-AlMg1(C)	0.3	0.45	0.05	0.15	0.7 - 1.1	0.1	---	0.2	---	---	---	0.05	0.15	
EN AW-5019 EN AW-AlMg5	0.4	0.5	0.1	0.1 - 0.6	4.5 - 5.6	0.2	---	0.2	---	---	0.2	0.05	0.15	0.1 - 0.6 Mn+Cr
EN AW-5050 EN AW-AlMg1.5(C)	0.4	0.7	0.2	0.1	1.1 - 1.8	0.1	---	0.25	---	---	---	0.05	0.1	
EN AW-5051A EN AW-AlMg2(B)	0.3	0.45	0.05	0.25	1.4 - 2.1	0.3	---	0.2	---	---	0.1	0.05	0.15	
EN AW-5052 EN AW-AlMg2.5	0.25	0.4	0.1	0.1	2.2 - 2.8	0.15 - 0.35	---	0.1	---	---	---	0.05	0.15	
EN AW-5087 EN AW-AlMg4.5MnZr	0.25	0.4	0.05	0.7 - 1.1	4.5 - 5.2	0.05 - 0.25	---	0.25	---	---	0.15	0.05	0.15	0.1 - 0.2 Zr
EN AW-5154A EN AW-AlMg3.5(A)	0.5	0.5	0.1	0.5	3.1 - 3.9	0.25	---	0.2	---	---	0.2	0.05	0.15	0.1 - 0.5 Mn+Cr
EN AW-5183 EN AW- AlMg4.5Mn0.7(A)	0.4	0.4	0.1	0.5 - 1.0	4.3 - 5.2	0.05 - 0.25	---	0.25	---	---	0.15	0.05	0.15	
EN AW-5251 EN AW-AlMg2	0.4	0.5	0.15	0.1 - 0.5	1.7 - 2.4	0.15	---	0.15	---	---	0.15	0.05	0.15	
EN AW-5356 EN AW-AlMg5Cr(A)	0.25	0.4	0.1	0.05 - 0.2	4.5 - 5.5	0.05 - 0.2	---	0.1	---	---	0.06 - 0.2	0.05	0.15	
EN AW-5754 EN AW-AlMg3	0.4	0.4	0.1	0.5	2.6 - 3.6	0.3	---	0.2	---	---	0.15	0.05	0.15	0.1 - 0.6 Mn+Cr
series 6000														
EN AW-6056 EN AW-AlSi1MgCuMn	0.7 - 1.3	0.5	0.5 - 1.1	0.4 - 1.0	0.6 - 1.2	0.25	---	0.1 - 0.7	---	---	---	0.05	0.15	0.20 Zr+Ti
EN AW-6060 EN AW-AlMgSi	0.3 - 0.6	0.1 - 0.3	0.1	0.1	0.35 - 0.6	0.05	---	0.15	---	---	0.1	0.05	0.15	
EN AW-6063 EN AW-AlMg0.7Si	0.2 - 0.6	0.35	0.1	0.1	0.45 - 0.9	0.1	---	0.1	---	---	0.1	0.05	0.15	
EN AW-6082 EN AW-AlSi1MgMn	0.7 - 1.3	0.5	0.1	0.4 - 1.0	0.6 - 1.2	0.25	---	0.2	---	---	0.1	0.05	0.15	
EN AW-6101 EN AW-AlMgSi	0.3 - 0.7	0.5	0.1	0.03	0.35 - 0.8	0.03	---	0.1	---	---	---	0.03	0.1	0.06 B
series 7000														
EN AW-7050 EN AW-AlZn6CuMgZr	0.12	0.15	2.0 - 2.6	0.1	1.9 - 2.6	0.04	---	5.7 - 6.7	---	---	0.06	0.05	0.15	0.08 - 0.15 Zr
EN AW-7075 EN AW-AlZn5.5MgCu	0.4	0.5	1.2 - 2.0	0.3	2.1 - 2.9	0.18 - 0.28	---	5.1 - 6.1	---	---	0.2	0.05	0.15	

Al-Alloys

Conditions

numerical chemical symbols	conditions based on DIN EN 1302-1	diameter d in mm	R _m MPa		R _{p0.2} MPa typ.	A _{100 mm} % typ.
			min.	max		
series 1000						
EN AW-1050A, 1350 EN AW-Al99.5	O	≤ 20	---	95	---	35
	H14	≤ 18	100	---	95	5
	H16	≤ 15	120	---	115	3
	H18	≤ 10	140	---	135	3
EN AW-1070A, 1370 EN AW-Al99.7	O	≤ 20	---	85	---	35
	H14	≤ 18	95	---	90	5
	H18	≤ 10	125	---	120	3
EN AW-1080A EN AW-Al99.8(A)	O	≤ 20	---	80	---	35
	H14	≤ 18	90	---	85	5
	H18	≤ 10	120	---	115	3
EN AW-1098 EN AW-Al99.98	O	≤ 20	---	70	---	25
	H14	≤ 18	85	---	80	3
	H18	≤ 10	115	---	110	2
EN AW-131050 EN AW-AlFeMg	F	---	120	160	---	25
series 2000						
EN AW-2011 EN AW-AlCu6BiPb	T3	≤ 18	310	---	295	6
	T8	≤ 18	370	---	310	4
EN AW-2017A EN AW-AlCu4MgSi(A)	H13	≤ 18	210	300	190	5
	T4	≤ 18	380	---	255	18
EN AW-2024 EN AW-AlCu4Mg1	H13	≤ 18	230	300	200	5
	T4	≤ 18	420	---	315	18
EN AW-2117 EN AW-AlCu2.5Mg	H13	≤ 18	170	240	110	5
	T4	≤ 18	260	---	160	20
series 3000						
EN AW-3003 EN AW-AlMn1Cu	O	≤ 20	---	130	60	35
	H14	≤ 18	135	180	120	5
	H18	≤ 10	180	---	175	3
EN AW-3103 EN AW-AlMn1	O	≤ 20	---	130	60	35
	H14	≤ 18	135	180	120	5
	H18	≤ 10	170	---	165	3
series 5000						
EN AW-5019 EN AW-AlMg5	O	≤ 20	---	330	150	17
	H12	≤ 18	295	355	255	6
	H14	≤ 18	325	385	315	3
	H18	≤ 18	370	---	360	2
	H32	≤ 18	280	340	205	11
	H34	≤ 15	310	370	265	8
	H38	≤ 10	360	---	320	4
EN AW-5051A EN AW-AlMg2(B)	O	≤ 20	---	195	85	15
	H12	≤ 18	170	220	155	6
	H14	≤ 18	195	245	200	4
	H18	≤ 10	245	---	200	3

Al-Alloys

Conditions

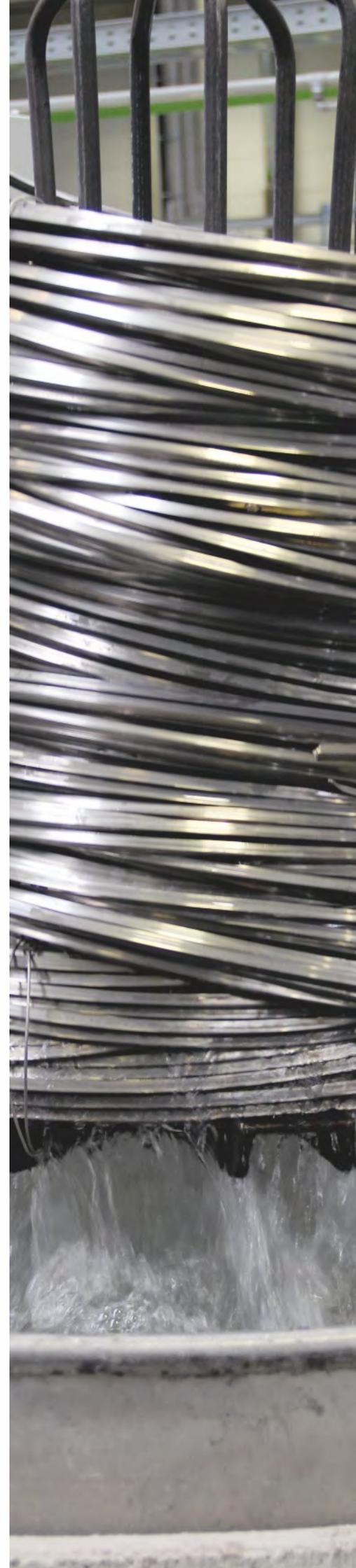
numerical chemical symbols	conditions based on DIN EN 1302-1	dia- meter d in mm	R _m MPa		R _{p0.2} MPa typ.	A _{100 mm} % typ.	
			min.	max			
series 5000							
EN AW-5052 EN AW-AlMg2.5	O	≤ 20	---	225	100	15	
	H14	≤ 18	225	275	225	4	
	H18	≤ 10	275	---	275	3	
	H32	≤ 18	190	240	145	11	
	H34	≤ 15	215	265	195	8	
	H38	≤ 10	260	---	245	5	
EN AW-5154A EN AW-AlMg3.5(A)	O	≤ 20	---	275	125	16	
	H14	≤ 18	280	330	270	3	
	H18	≤ 10	330	---	320	2	
	H32	≤ 18	235	285	170	11	
	H34	≤ 15	265	315	230	8	
	H38	≤ 10	290	340	250	6	
EN AW-5251 EN AW-AlMg2	O	≤ 20	---	215	95	15	
	H14	≤ 18	215	265	220	4	
	H18	≤ 10	265	---	270	3	
EN AW-5754 EN AW-AlMg3	O	≤ 20	---	250	110	16	
	H12	≤ 18	230	280	200	6	
	H14	≤ 18	255	305	250	3	
	H18	≤ 10	305	---	300	2	
	H32	≤ 18	220	270	160	11	
	H34	≤ 15	245	295	210	8	
series 6000	EN AW-6056 EN AW-AlSi1MgCuMn	H12/H13	≤ 18	160	240	140	4
		T6	≤ 20	400	---	360	10
	EN AW-6060 EN AW-AlMgSi	T39	≥ 6	220	---	---	---
		T4	≤ 20	140	210	90	13
		T6	≤ 20	210	---	160	10
		T89	< 6	260	---	---	---
EN AW-6063 EN AW-AlMg0.7Si	T39	≥ 6	230	---	---	---	
	T4	≤ 20	150	---	100	13	
	T6	≤ 20	220	---	190	10	
	T89	< 6	270	---	---	---	
EN AW-6082 EN AW-AlSi1MgMn	H13	≤ 18	165	225	130	4	
	T39	≥ 6	310	---	---	---	
	T4	≤ 20	205	285	135	13	
	T6	≤ 20	300	---	270	10	
EN AW-6101 EN AW-AlMgSi	T89	< 6	340	---	---	---	
	T6	≤ 15	215	---	160	10	
series 7000							
EN AW-7075 EN AW-AlZn5.5MgCu	O	≤ 20	---	275	110	13	
	H13	≤ 18	230	310	230	2.5	
	T6	≤ 20	510	---	485	10	

Heat Treatment

Overview of the conventional conditions as per DIN EN 515:2017-05

condition*	meaning
0	annealed – products achieving the required annealed properties after hot forming processes may be designated as 0 temper
H12	strain-hardened – 1/4 hard
H14	strain-hardened – 1/2 hard
H16	strain-hardened – 3/4 hard
H18	strain-hardened – 4/4 hard (fully hardened)
H19	strain-hardened – extra hard
H22	strain-hardened and partially annealed – 1/4 hard
H24	strain-hardened and partially annealed – 1/2 hard
H26	strain-hardened and partially annealed – 3/4 hard
H28	strain-hardened and partially annealed – 4/4 hard (fully hardened)
H32	strain-hardened and stabilized – 1/4 hard
H34	strain-hardened and stabilized – 1/2 hard
H36	strain-hardened and stabilized – 3/4 hard
H38	strain-hardened and stabilized – 4/4 hard (fully hardened)
T3	solution heat-treated, cold worked and naturally aged
T39	solution heat-treated and cold worked an appropriate amount to achieve the specified mechanical properties. Cold work may be carried out before or after natural ageing
T4	solution heat-treated and naturally aged
T6	solution heat-treated and then artificially aged
T7	solution heat-treated and then artificially overaged
T73	solution heat-treated and then fully artificially overaged to achieve the best corrosion resistance of the T7x tempers
T8	solution heat-treated, cold worked and then artificially aged
T9	solution heat-treated, artificially aged and then cold worked

* interim conditions or conditions outside the norm are possible on request



Additional Information

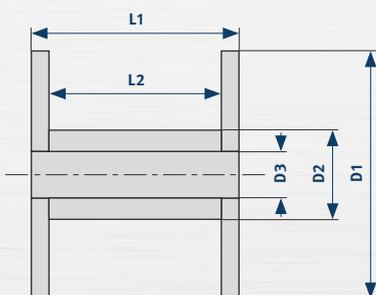
Weight per metre and cross-section table

wire d in mm	cross- section mm ²	Aluminium (Al) g/m	metre weight Copper (Cu) g/m	Iron (Fe) g/m	wire d in mm	cross- section mm ²	Aluminium (Al) g/m	metre weight Copper (Cu) g/m	Iron (Fe) g/m
0.1	0.008	0.021	0.07	0.062	4	12.56	33.912	112.035	98.847
0.2	0.031	0.085	0.28	0.247	4.5	15.896	42.92	141.795	125.103
0.3	0.071	0.191	0.63	0.556	5	19.625	52.988	175.055	154.449
0.4	0.126	0.339	1.12	0.988	5.5	23.746	64.115	211.817	186.883
0.5	0.196	0.53	1.751	1.544	6	28.26	76.302	252.079	222.406
0.6	0.283	0.763	2.521	2.224	6.5	33.166	89.549	295.843	261.018
0.7	0.385	1.039	3.431	3.027	7	38.465	103.856	343.108	302.72
0.8	0.502	1.356	4.481	3.954	7.5	44.156	119.222	393.874	347.51
0.9	0.636	1.717	5.672	5.004	8	50.24	135.648	448.141	395.389
1	0.785	2.12	7.002	6.178	8.5	56.716	153.134	505.909	446.357
1.1	0.95	2.565	8.473	7.475	9	63.585	171.68	567.178	500.414
1.2	1.13	3.052	10.083	8.896	9.5	70.846	191.285	631.949	557.56
1.3	1.327	3.582	11.834	10.441	10	78.5	211.95	700.22	617.795
1.4	1.539	4.154	13.724	12.109	11	94.985	256.46	847.266	747.532
1.5	1.766	4.769	15.755	13.9	12	113.04	305.208	1008.317	889.625
2	3.14	8.478	28.009	24.712	13	132.665	358.196	1183.372	1044.074
2.5	4.906	13.247	43.764	38.612	14	153.86	415.422	1372.431	1210.878
3	7.065	19.076	63.02	55.602	15	176.625	476.888	1575.495	1390.039
3.5	9.616	25.964	85.777	75.68					

Diameter Tolerances

diameter wire/bars d in mm	production tolerance +/-	diameter wire/bars d in mm	production tolerance +/-
< 0.50	0.010 mm (only round wire)	> 6.00 - 7.00	0.050 mm
> 0.50 - 1.00	0.015 mm (only round wire)	> 7.00 - 8.00	0.060 mm
> 1.00 - 3.00	0.020 mm	> 8.00 - 10.00	0.080 mm
> 3.00 - 5.00	0.030 mm	> 10.00 - 12.00	0.100 mm
> 5.00 - 6.00	0.040 mm	> 12.00 - 14.00	0.120 mm

Standard spools and dimensions



D1 = flange diameter
 D2 = core diameter
 D3 = bore hole
 L1 = entire width of spool
 L2 = winding width

spool type d in mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	net weight kg-Al
K 80	80	50	16	80	64	0.5
K 100	100	63	16	100	80	0.5
K 125	125	80	16	125	100	1
K 160	160	100	22	160	128	2
K 200	200	125	22	200	160	2
K 250	250	100	22	190	150	9
DIN K250	250	160	22	200	160	6-10
K 355	355	220	36	200	160	15
K 500/250	500	315	127	250	180	35
K 500/350	500	315	127	350	280	50
D 200	200	105	50.5	55	45	2.5
D 250	250	150	18	80	70	4.5
D 280	280	150	18	80	70	6
D 300	300	212	51.5	103	91	6
D 300/20	300	180	50.5	103	85	7
D 300/125	300	125	52	100	85	10
D 305	305	125	38	82	52	6.5
HS 390	390	310	305	89	79	7
Wood 400	400	200	50	105	93	15
HS 460	460	319	305	105	91	15
HD 135/16	135	56.5	16.5	48.5	42.5	0.8
HD 135/52	135	56.5	52	49	43	0.8
HD 150	150	57	18	49	43	1
HD 150-N2	150	56	18	100	92	2
AL 250	250	150	127	190	150	8
AL 450	450	250	127	320	280	50
GL 560	560	315	127	425	355	100
GL 630	630	355	127	475	400	140

Packing formats

Ring packing with or without protective paper cladding

Steel formers 250 - 300 kg / cardboard formers 300 - 800 kg

Coil packaging 200 - 1000 kg

(conical, cylindrical or wound layer upon layer, in different sizes)

Large coils on stands

Wooden boxes for loose bars and bundles

Packing for oversea transportation

Fiber drums about 60 kg

**Tailored for our customer packing specifications
or special requirements is our strength.**



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we wire the world



Product areas

- Cold heading wire
- Round, flat and shaped wire
- Wire for tea bags and clips
- Profile bars
- Round bars
- Thermal spray wire
- Vacuum metallization wire
- Lightning protection wire
- Fine wire

Please do not hesitate to contact us for further questions and requirements.

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