

Metal Material Equivalents Chart: Worldwide Grade Cross-Reference

Type any grade into the search box and the chart shows what the same metal is called in every other country. Steel and stainless, carbon and alloy steel, cast iron, aluminium, copper alloys, silver and gold, plus nickel, zinc, lead, tin, magnesium and titanium - each listed against eight standards systems: USA (AISI/UNS), Germany (DIN and W.-Nr.), Europe (EN), UK (BS), France (AFNOR), Japan (JIS), China (GB) and Russia (GOST).

Stainless steel equivalents

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
304 austenitic	304 / S30400	X5CrNi18-10 (1.4301)	1.4301	304S15	Z6CN18-09	SUS304	06Cr19Ni10	08X18H10
304L low carbon	304L / S30403	X2CrNi19-11 (1.4306)	1.4306	304S11	Z2CN18-10	SUS304L	022Cr19Ni10	03X18H11
316 austenitic	316 / S31600	X5CrNiMo17-12-2 (1.4401)	1.4401	316S31	Z6CND17-12	SUS316	06Cr17Ni12Mo2	08X17H13M2
316L low carbon	316L / S31603	X2CrNiMo17-12-2 (1.4404)	1.4404	316S11	Z2CND17-12	SUS316L	022Cr17Ni12Mo2	03X17H14M2
317L Mo-bearing	317L / S31703	X2CrNiMo18-15-4 (1.4438)	1.4438	317S12	Z2CND19-15	SUS317L	022Cr19Ni13Mo3	03X17H14M3
321 Ti-stabilised	321 / S32100	X6CrNiTi18-10 (1.4541)	1.4541	321S31	Z6CNT18-10	SUS321	06Cr18Ni11Ti	08X18H10T
316Ti Ti-stabilised	316Ti / S31635	X6CrNiMoTi17-12-2 (1.4571)	1.4571	320S31	Z6CNDT17-12	SUS316Ti	06Cr17Ni12Mo2Ti	08X17H13M2T
310S heat resistant	310S / S31008	X8CrNi25-21 (1.4845)	1.4845	310S24	Z8CN25-20	SUS310S	06Cr25Ni20	—
303 free-machining	303 / S30300	X8CrNiS18-9 (1.4305)	1.4305	303S31	Z8CNF18-09	SUS303	Y1Cr18Ni9	—
201 low-nickel	201 / S20100	X2CrMnNiN17-7-5 (1.4372)	1.4372	—	—	SUS201	12Cr17Mn6Ni5N	12X17Г9AH4

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
430 ferritic	430 / S43000	X6Cr17 (1.4016)	1.4016	430S15	Z8C17	SUS430	10Cr17	12X17
410 martensitic	410 / S41000	X12Cr13 (1.4006)	1.4006	410S21	Z12C13	SUS410	12Cr13	12X13
420 martensitic	420 / S42000	X20Cr13 (1.4021)	1.4021	—	Z20C13	SUS420J2	20Cr13	20X13
440C bearing grade	440C / S44004	X105CrMo17 (1.4125)	1.4125	—	Z100CD17	SUS440C	95Cr18	95X18
2205 duplex	2205 / S31803	X2CrNiMoN22-5-3 (1.4462)	1.4462	—	—	SUS329J3L	022Cr22Ni5Mo3N	—
2507 super duplex	2507 / S32750	X2CrNiMoN25-7-4 (1.4410)	1.4410	—	—	SUS329J4L	022Cr25Ni7Mo4N	—
630 / 17-4PH PH	630 / S17400	X5CrNiCuNb16-4 (1.4542)	1.4542	—	—	SUS630	05Cr17Ni4Cu4Nb	—

Carbon and alloy steel equivalents

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
Mild / low-carbon (C15-C20)	1018 / G10180	C15 (1.0401)	C15E	040A15	XC15	S15C	15#	15
Medium carbon	1045 / G10450	C45 (1.0503)	C45E	080M46	XC45	S45C	45#	45
Chromoly (Cr-Mo)	4140 / G41400	42CrMo4 (1.7225)	42CrMo4	708M40	42CD4	SCM440	42CrMo	—
Ni-Cr-Mo high tensile	4340 / G43400	36CrNiMo4 (1.6511)	36CrNiMo4	817M40	35NCD6	SNCM439	40CrNiMoA	40XH2MA
Case-hardening (Ni-Cr-Mo)	8620 / G86200	21NiCrMo2 (1.6523)	20NiCrMo2-2	805M20	20NCD2	SNCM220	20CrNiMo	—
Bearing steel	52100 / G52986	100Cr6 (1.3505)	100Cr6	534A99	100C6	SUJ2	GCr15	ШХ15
Free-cutting (lead)	12L14 / G12144	9SMnPb28 (1.0737)	11SMnPb30	—	—	SUM24L	Y15Pb	—

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
Free-cutting (re-sulphurised)	1215 / G12150	9SMn28 (1.0715)	11SMn30	—	—	SUM22	Y15	—

Iron, cast iron and ductile iron equivalents

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
Pure iron (electrolytic / Armco)	Armco iron / ASTM A848	—	—	—	—	SUY-1	DT4	—
Grey cast iron (Class 30)	A48 Cl.30	GG25 (0.6025)	GJL-250	220	Ft25	FC250	HT250	SCh25
Ductile / nodular iron	A536 60-40-18	GGG-40 (0.7040)	GJS-400-15	420/12	FGS 400-12	FCD400	QT400-18	VCh40
Malleable iron	A47 32510	GTS-35 (0.8135)	EN-GJMB-350-10	B340/12	—	FCMB340	KTH350-10	KCh35-10

Aluminium alloy equivalents

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
1050A pure (99.5%)	1050A / A91050	Al99.5 (3.0255)	EN AW-1050A	1050A	1050A	A1050	1050A	АД0
1060 pure (99.6%)	1060 / A91060	Al99.6 (3.0257)	EN AW-1060	1060	1060	A1060	1060	АД1
1100 pure (99.0%)	1100 / A91100	Al99.0Cu (3.0205)	EN AW-1100	1100	1100	A1100	1100	АД
2014 high-strength (Cu)	2014 / A92014	AlCu4SiMg (3.1255)	EN AW-2014	2014	2014	A2014	2A14	Д1
2024 high-strength (Cu)	2024 / A92024	AlCu4Mg1 (3.1355)	EN AW-2024	2024	2024	A2024	2A12	Д16
3003 (Mn)	3003 / A93003	AlMn1Cu (3.0517)	EN AW-3003	3003	3003	A3003	3003	АМц

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
5052 (Mg 2.5)	5052 / A95052	AlMg2.5 (3.3523)	EN AW-5052	5052	5052	A5052	5052	AMr2.5
5083 (Mg 4.5)	5083 / A95083	AlMg4.5Mn0.7 (3.3547)	EN AW-5083	5083	5083	A5083	5083	AMr4.5
5754 (Mg 3)	5754 / A95754	AlMg3 (3.3535)	EN AW-5754	5754	5754	A5754	5754	AMr3
6060 extrusion (Mg-Si)	6060 / A96060	AlMgSi0.5 (3.3206)	EN AW-6060	6060	6060	A6060	6060	АД31
6061 (Mg-Si-Cu)	6061 / A96061	AlMg1SiCu (3.3211)	EN AW-6061	6061	6061	A6061	6061	АД33
6063 architectural	6063 / A96063	AlMg0.7Si (3.3222)	EN AW-6063	6063	6063	A6063	6063	АД31
6082 structural	6082 / A96082	AlMgSi1 (3.2315)	EN AW-6082	6082	6082	A6082	6082	—
7075 (Zn)	7075 / A97075	AlZn5.5MgCu (3.4365)	EN AW-7075	7075	7075	A7075	7A09	B95

Copper and copper alloy equivalents

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
Electrolytic copper (ETP)	C11000	Cu-ETP (2.0060)	CW004A	C101	Cu-ETP	C1100	T2	M1
Oxygen-free copper	C10100	Cu-OF (2.0040)	CW008A	C110	Cu-OF	C1011	TU1	M0
Deoxidised copper (DHP)	C12200	Cu-DHP (2.0090)	CW024A	C106	Cu-DHP	C1220	TP2	M1p
Free-cutting brass	C36000	CuZn39Pb3 (2.0401)	CW614N	CZ121	CuZn39Pb3	C3604	HPb59-1	ЛС59-1
Cartridge brass 70/30	C26000	CuZn30 (2.0265)	CW505L	CZ106	CuZn30	C2600	H70	Л70

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
Nickel silver (CuNiZn)	C75200	CuNi18Zn20 (2.0742)	CW409J	NS104	CuNi18Zn20	C7521	BZn18-18	—
Phosphor bronze	C51000	CuSn6 (2.1020)	CW452K	PB102	CuSn6	C5101	QSn6.5-0.1	—
Tin bronze (8% Sn)	C52100	CuSn8 (2.1030)	CW453K	PB103	CuSn8	C5210	QSn8-0.3	—
Aluminium bronze	C63000	CuAl10Ni5Fe4 (2.0966)	CW307G	CA104	CuAl10Ni5Fe4	C6301	QAl10-4-4	БрАЖН10-4-4
Beryllium copper	C17200	CuBe2 (2.1247)	CW101C	—	CuBe2	C1720	QBe2	БрБ2
Cupronickel 90/10	C70600	CuNi10Fe1Mn (2.0872)	CW352H	CN102	CuNi10Fe1Mn	C7060	BFe10-1-1	МНЖМц10-1-1

Other metals: nickel, zinc, lead, tin, magnesium, titanium

Material	USA (AISI/UNS)	Germany DIN (W.-Nr.)	Europe EN	UK (BS)	France (AFNOR)	Japan (JIS)	China (GB)	Russia (GOST)
Nickel 200	N02200	Ni99.2 (2.4066)	Ni99.2	NA11	Ni99.2	NW2200	N6	НП2
Nickel 201 (low carbon)	N02201	Ni99.6 (2.4068)	Ni99.6	NA12	Ni99.6	NW2201	N4	НП1
Zinc (99.995)	ASTM B6 Zn99.995	Zn99.995 (DIN 1706)	EN 1179 Zn99.995	—	—	H2107 Zn99.99	Zn99.995	Ц0
Lead (99.985)	ASTM B29 Pb99.985	Pb99.985 (DIN 1719)	EN 12659 Pb99.985	—	—	H2105 Pb99.99	Pb99.994	С1
Tin (99.9)	ASTM B339 Sn99.9	Sn99.9 (DIN 1783)	—	—	—	H2108 Sn99.9	Sn99.9	О1
Magnesium AZ31B	AZ31B (ASTM B90)	MgAl3Zn (3.5312)	EN 1753	—	—	—	AZ31B	—
Titanium CP Grade 2	Grade 2 / R50400	Ti2 (3.7035)	3.7035	—	—	H4600 Cl.2	TA2	BT1-0
Titanium Ti-6Al-4V	Grade 5 / R56400	TiAl6V4 (3.7165)	3.7165	—	—	H4600 Cl.60	TC4	BT6

Silver and gold

Metal	Grade / purity	Designation & standard	Typical use
Silver, fine	99.99% Ag	ASTM B413 (Ag 99.99)	Electrical contacts, high-conductivity parts
Silver, fine	99.95% Ag	ASTM B413 (Ag 99.95)	General electrical and brazing stock
Silver, sterling	92.5% Ag	ISO 9202 / BS 925 hallmark	Jewellery, cutlery, decorative parts
Silver brazing alloy	Ag72Cu28	AWS BAg-8 / DIN L-Ag72 / GB BAg72Cu / ISO 17672	Brazing copper and brass assemblies
Silver-nickel contact	AgNi10	DIN 17471 / ASTM B693	Switchgear and relay contacts
Silver-tungsten contact	AgW50	ASTM B631 / DIN 17471	Heavy-duty arcing contacts
Gold, fine	99.99% Au (4N)	ASTM F72 (bonding wire)	Semiconductor bonding wire, plating
Gold, fine	99.999% Au (5N)	ASTM F72	High-reliability bonding wire
Gold, pure	99.9% Au (24K)	ISO 9202 / LBMA good delivery	Investment, bullion, jewellery
Gold alloy	75.0% Au (18K)	ISO 9202 / EN 28654	Jewellery, luxury connectors
Hard gold plating	99.0% Au + Co	ASTM B488 Type III	Wear-resistant electrical contacts
Gold brazing alloy	Au80Cu20	AWS BAu-4 / DIN L-Au80Cu	Brazing, vacuum and electronics

Other national standards

- Sweden uses SS numbers: SS 2332 (304), SS 2352 (304L), SS 2343 (316), SS 2348 (316L), SS 2337 (321), SS 2346 (303), SS 2320 (430), SS 2377 (2205), SS 2384 (17-4PH).
- Italy (UNI) and Spain (UNE) now publish the European EN designation, so use the EN column.
- South Korea (KS) uses designations equivalent to JIS, for example KS D 3698 STS304 for 304 stainless.
- Australia (AS) and India (IS) follow the ISO and EN designations for these grades.
- International standards: ISO 15510 (stainless), ISO 683 (steels), ISO 209 (aluminium), ISO 1337 (copper alloys), ISO 9202 (precious metal fineness).

How to read this chart

- A row is one material, not one numbered grade. The 'Material' column names the type; the columns to the right give the same material in each country's standard.
- Equivalent match composition and strength class, not every detail. Heat treatment, tolerances and free-machining additives (like the S or Pb in 303 and C36000) can differ.
- The German W.-Nr. (Werkstoffnummer) is in brackets next to the DIN symbol; the EN column lists the EN standard number.
- Silver and gold are specified by purity or alloy content, which is the same designation worldwide, so they are listed by grade and standard rather than by country.
- A dash means there is no direct national standard equivalent - use the nearest column and confirm with the mill certificate (MTC).

Need a grade that is not listed? Search the number you have; if it does not appear, send the drawing and we confirm the equivalent, stock and price.

Frequently asked questions

How do I find a country's grade from another country's number?

Use the search box on this page. Type the number you have, for example 1.4301, SUS304, 06Cr19Ni10 or C36000, and the chart shows the whole row, so you can read the equivalent in every other country at once.

What is the equivalent of 304 stainless steel in other countries?

304 stainless is 1.4301 in Germany and Europe (EN 10088), X5CrNi18-10 in the DIN symbol system, 304S15 in UK BS, Z6CN18-09 in France AFNOR, SUS304 in Japan JIS, 06Cr19Ni10 in China GB, 08Kh18N10 in Russia GOST and SS 2332 in Sweden.

Which countries' standards does the chart cover?

Eight systems: USA (AISI, SAE, ASTM and UNS), Germany (DIN and Werkstoffnummer), Europe (EN), United Kingdom (BS), France (AFNOR), Japan (JIS), China (GB) and Russia (GOST), plus notes for Sweden, Italy, Spain, South Korea, Australia and India and the ISO standards.

Are equivalent grades exactly interchangeable?

They are equivalent in composition and strength class, but not identical. Heat treatment, tolerances and machinability can differ, so always confirm the grade against the mill certificate before a production run.