WORKSHOP REFERENCE · 04

Material Cross-Reference

Common workshop materials by ISO machining group, with German Werkstoff numbers, European names and their American equivalents.

ISO material groups

ISO 513 colour code

P — Steel
Unalloyed, low-alloy and high-alloy steel, tool steel, cast steel, ferritic and martensitic stainless.
Long chips. Generally predictable and the easiest group to machine.

K — Cast iron
Grey, ductile (SG), malleable and compacted graphite (CGI) iron.
Short, broken chips. Abrasive, so edge wear is the limit.

S — Superalloys & titanium
Nickel, cobalt and iron-based heat-resistant alloys; titanium and its alloys.
Heat stays in the edge. Low speed, notch wear and work hardening.

M — Stainless steel
Austenitic, duplex and super-duplex stainless steel.
Work-hardens, builds up on the edge and holds heat. Keep the feed up and the edge sharp.

N — Non-ferrous
Aluminium and its alloys, copper, brass, bronze, plastics and composites.
Soft and gummy. Sharp, positive, polished edges at high speed.

H — Hardened materials
Hardened steel 45–68 HRC, chilled and white cast iron, hardfacing.
CBN, ceramic or fine-grain coated carbide. Rigid set-ups only.

P Steel

W.Nr.	EN designation	Old DIN / trade	AISI / SAE / UNS	Typical use
1.0301	C10	Ck10	1010	Case-hardening, low carbon
1.0402	C22	C22	1020	Mild steel, general
1.0503	C45	C45	1045	Medium carbon, shafts
1.0601	C60	C60	1060	High carbon, springs
1.0570	S355J2	St52-3	≈ A572 Gr.50	Structural
1.0715	11SMn30	9SMn28	1215	Free-cutting
1.0718	11SMnPb30	9SMnPb28	12L14	Free-cutting, leaded
1.7131	16MnCr5	16MnCr5	5115	Case-hardening
1.6523	20NiCrMo2-2	21NiCrMo2	8620	Case-hardening, gears
1.7218	25CrMo4	25CrMo4	4130	Chromoly, tube
1.7225	42CrMo4	42CrMo4	4140	Shafting, high tensile
1.6582	34CrNiMo6	34CrNiMo6	≈ 4340	High-strength shafting
1.8159	51CrV4	50CrV4	6150	Spring steel
1.3505	100Cr6	100Cr6	52100	Bearing steel
1.2510	100MnCrW4	100MnCrW4	O1	Tool steel, oil hardening
1.2363	X100CrMoV5	X100CrMoV5-1	A2	Tool steel, air hardening
1.2379	X153CrMoV12	X155CrVMo12-1	D2	Cold-work die steel
1.2344	X40CrMoV5-1	X40CrMoV5-1	H13	Hot-work die steel
1.2311	40CrMnMo7	40CrMnMo7	P20	Plastic mould steel
1.3343	HS6-5-2C	S6-5-2	M2	High-speed steel

K Cast iron

W.Nr.	EN designation	Old DIN / trade	AISI / SAE / UNS	Typical use
0.6020	EN-GJL-200	GG20	A48 Class 30B	Grey iron
0.6025	EN-GJL-250	GG25	A48 Class 40B	Grey iron
0.6030	EN-GJL-300	GG30	A48 Class 45B	Grey iron
0.7040	EN-GJS-400-15	GGG40	A536 60-40-18	Ductile, ferritic
0.7050	EN-GJS-500-7	GGG50	A536 80-55-06	Ductile, ferritic-pearlitic
0.7070	EN-GJS-700-2	GGG70	A536 100-70-03	Ductile, pearlitic
—	EN-GJV-450	GJV-450	—	Compacted graphite (CGI)
5.3400	EN-GJS-800-10	ADI 800	—	Austempered ductile (ADI)

M Stainless steel

W.Nr.	EN designation	Old DIN / trade	AISI / SAE / UNS	Typical use
1.4301	X5CrNi18-10	V2A	304 · S30400	Austenitic, general
1.4307	X2CrNi18-9	—	304L · S30403	Austenitic, low carbon
1.4305	X8CrNiS18-9	—	303 · S30300	Free-machining stainless
1.4401	X5CrNiMo17-12-2	V4A	316 · S31600	Marine, chemical
1.4404	X2CrNiMo17-12-2	—	316L · S31603	Marine, welded
1.4571	X6CrNiMoTi17-12-2	—	316Ti · S31635	Ti-stabilised
1.4541	X6CrNiTi18-10	—	321 · S32100	Ti-stabilised, heat
1.4462	X2CrNiMoN22-5-3	—	2205 · S32205	Duplex
1.4410	X2CrNiMoN25-7-4	—	2507 · S32750	Super-duplex
1.4542	X5CrNiCuNb16-4	—	17-4PH · S17400	Precipitation hardening
1.4016	X6Cr17	—	430 · S43000	Ferritic *
1.4006	X12Cr13	—	410 · S41000	Martensitic *
1.4021	X20Cr13	—	420 · S42000	Martensitic, cutlery *
1.4057	X17CrNi16-2	—	431 · S43100	Martensitic, shafts *

* Ferritic and martensitic stainless are often machined with P-grade inserts.

N Aluminium & copper alloys

W.Nr.	EN designation	Old DIN / trade	AISI / SAE / UNS	Typical use
3.0255	EN AW-1050A	Al99.5	1050	Pure aluminium
3.1325	EN AW-2017A	AlCuMg1	2017	Free-machining, high strength
3.3547	EN AW-5083	AlMg4.5Mn	5083	Marine plate
3.3206	EN AW-6060	AlMgSi0.5	6060	Extrusions
3.3211	EN AW-6061	AlMg1SiCu	6061	General purpose
3.2315	EN AW-6082	AlMgSi1	6082	Structural
3.4365	EN AW-7075	AlZnMgCu1.5	7075	Aerospace, high strength
3.2371	EN AC-42100	G-AlSi7Mg	A356	Cast aluminium
2.0065	CW004A Cu-ETP	E-Cu58	C11000	Electrolytic copper
2.0401	CW614N CuZn39Pb3	Ms58	C38500	Free-cutting brass
2.0321	CW508L CuZn37	Ms63	C27200	Brass, cold forming
2.0966	CW307G CuAl10Ni5Fe4	—	C63000	Aluminium bronze

S Superalloys & titanium

W.Nr.	EN designation	Old DIN / trade	AISI / SAE / UNS	Typical use
2.4360	NiCu30Fe	Monel 400	N04400	Nickel-copper
2.4856	NiCr22Mo9Nb	Inconel 625	N06625	Nickel superalloy
2.4668	NiCr19NbMo	Inconel 718	N07718	Nickel superalloy, aged
2.4819	NiMo16Cr15W	Hastelloy C-276	N10276	Corrosion resistant
2.4654	NiCr19Co14Mo4Ti	Waspaloy	N07001	Turbine alloy
1.4876	X10NiCrAlTi32-21	Incoloy 800	N08800	Iron-nickel, heat resistant
3.7025	Ti Grade 1	Ti1	R50250	Commercially pure titanium
3.7035	Ti Grade 2	Ti2	R50400	Commercially pure titanium
3.7165	TiAl6V4	Ti Grade 5	R56400	Alpha-beta titanium

H Hardened materials

W.Nr.	EN designation	Old DIN / trade	AISI / SAE / UNS	Typical use
1.7225	42CrMo4, hardened	—	4140	45–55 HRC
1.3505	100Cr6, hardened	—	52100	58–64 HRC
1.2379	X153CrMoV12, hardened	—	D2	58–62 HRC
1.3343	HS6-5-2C, hardened	—	M2	62–65 HRC
0.9630	GX300CrNiSi9-5-2	Ni-Hard 4	A532 I-D	Chilled / white iron
1.3401	X120Mn12	Hadfield	A128	Manganese steel, work-hardening

Equivalents marked ≈ are close but not identical in chemistry; check the mill certificate where it matters. Inconel, Monel, Incoloy, Hastelloy and Waspaloy are trademarks of their owners.

(08) 9345 2099 · sales@teravin.tools
19 Delawney Street, Balcatta WA 6021
A guide only. Always check against the tool maker's data and your machine and set-up, and talk to your Teravin sales engineer before relying on it. Terms: teravin.tools/terms

TERAVIN TOOLS