

Material table from USD Formteiltechnik GmbH

The combination of a suitable material, an appropriate manufacturing process and a tailored heat treatment enables components to be designed optimally for their intended application.

This **materials table** assists in selecting the appropriate material for your application.

The table serves as a guide for classifying material designations from different standardisation systems and time periods. It contains current European material designations, earlier German or historical designations, as well as international comparative and reference designations.

The correspondences may be based on a historical standard correspondence, a similar chemical composition, comparable mechanical properties, a common alloy family, or a comparison commonly used in practice. Differences may exist, in particular, in product form, manufacturing process, delivery and heat treatment condition, dimensions, mechanical properties and testing requirements.

A comparative or reference designation therefore neither confirms complete technical equivalence nor interchangeability or suitability for use, and does not constitute a material or substitution approval. The decisive factors are the drawing, specification, order, currently applicable standard, product form, delivery condition, material certificate and, where applicable, customer approval.

Do you require other material grades? Please feel free to contact us.

Material number	Shortname	DIN EN Material	Equivalent materials according to other standards
1.0038	S235JR	EN 10025-2	ST 37-2 GB/T700 Q235B ASTM A36
1.0044	S275JR	EN 10025-2	ST 44-2 GB/T700 Q275 ASTM A 572 Grade 42
1.0045	S355JR	EN 10025-2	St 52-3 GB/T 1591 Q355B ASTM A572/A572M Grade 50
1.0060	E335	EN 10025-2	St 60-2
1.0114	S235J0	EN 10025-2	St 37-3U GB/T 700 Q235C ASTM A709/A709M Grade 36
1.0117	S235J2	EN 10025-2	St 37-3 GB/T 700 Q235D ASTM A709/A709M Grade 36
1.0226	DX51D+Z	EN 10346	
1.0308	E235	EN 10305-2	GB/T 699 Grade 10
1.0309	DX55D+Z	EN 10346	
1.0312	DC05	EN 10130	
1.0330	DC01	EN 10130	
1.0332	DD11	EN 10111	
1.0335	DD13	EN 10111	
1.0338	DC04	EN 10130	
1.0345	P235GH	EN 10028-2	ASTM A516 Grade 60 GB/T 713 Q245R
1.0347	DC03	EN 10130	
1.0355	DX53D+Z	EN 10346	GS-38 ASTM A27 (Grade 60-30)
1.0420	GE200	EN 10293	
1.0446	GE240	EN 10293	GS-45 ASTM A216/A216M WCA) ASTM A27 (65-35)
1.0449	GS200	EN 10293	
1.0454	GE270	EN 10293	
1.0455	GS240	EN 10293	

1.0460	P250GH	EN 10028-2	C22.8 ASTM A105/A105M (Schmiedeteil) GB/T 713 Q245R (Blech)
1.0501	C35	DIN EN ISO 683-1	AISI 1035 GB/T 699 Grade 35
1.0503	C45	DIN EN ISO 683-1	AISI 1045 GB/T 699 Grade 45
1.0548	HC340LA	EN 10268	ASTM A1008 HSLAS Grade 50
1.0550	HC380LA	EN 10268	ASTM A1008 HSLAS Grade 55
1.0556	HC420LA	EN 10268	ASTM A1008 HSLAS Grade 60
1.0558	GE300	EN 10293	GS-60
1.0566	P355NL1	EN 10028-3	ASTM A516/A516M Grade 70
1.0571	P355QH1	DIN EN 10222-4	TStE 355 ASTM A350 Grade LF2
1.0576	S355J2H	EN 10210-1	GB/T 1591 Q355D
1.0577	S355J2	EN 10025-2	St 52-3 GB 1591 Q355D
1.0579	S355J2C	DIN EN ISO 683-7:2025-02	St 52-3N GB/T 1591 Q355D
1.0580	E355	EN 10305-2	St 52 ASTM A513 Type 5 Grade 1024
1.0591	GE320	EN 10293	
1.0597	GE360	EN 10293	
1.0601	C60	DIN EN ISO 683-1	Ck60 GB/T 699 60
1.0619	GP240GH	DIN EN 10213	ASTM A216 Grade WCB
1.0625	GP280GH	DIN EN 10213	ASTM A216 Grade WCC
1.0715	11SMn30	DIN EN ISO 683-4	9SMn28 ASTM A29 Grade 1215 GB/T 8731 Y15
1.0718	11SMnPb30	DIN EN ISO 683-4	9SMnPb28 ASTM A29 Grade 12L14 GB/T 8731 Y15Pb
1.0721	10S20	DIN EN ISO 683-4	
1.0873	DC06	EN 10130	
1.0933	HX340LAD	EN 10346	
1.0976	S355MC	EN 10149-2	QStE 380TM Q355MC ASTM A1011/A1011M Grade 50 Class 2
1.0980	S420MC	EN 10149-2	QStE 420TM Q420MC ASTM A1011/A1011M Grade 60
1.0984	S500MC	EN 10149-2	QStE 500TM Q500MC
1.1131	G17Mn5	EN 10293	ASTM A352 LCB
1.1181	C35E	DIN EN ISO 683-1	Ck35 ASTM A29/A29M Grade 1035 GB/T 699 Grade 35
1.1191	C45E	DIN EN ISO 683-1	Ck45 ASTM A29/A29M Grade 1045 GB/T 699 Grade 45
1.1221	C60E	DIN EN ISO 683-1	Ck60 ASTM A29/A29M Grade 1060 GB/T 699 Grade 60
1.1248	C75S	DIN EN 10132-4	Ck75 SAE/AISI 1075 GB/T 1222 65Mn
1.2080	X210Cr12	EN ISO 4957	GB/T 1299 Cr12
1.2241	51CrMnV4	DIN EN ISO 683-2	SAE/AISI 6150 ASTM A29/A29M Grade 6150 GB/T 3077 50CrVA
1.2842	90MnCrV8	EN ISO 4957	
1.3343	HS6-5-2C	EN ISO 4957	
1.3505	100Cr6	DIN EN ISO 683-17	GB/T 18254 GCr15 AISI 52100 ASTM A295 Grade 52100
1.3960	GX2CrNiMoN18-14	SEW 395	
1.4008	GX7CrNiMo12-1	EN 10283	
1.4016	X6Cr17	EN 10088-3	SAE/AISI 430 / UNS S43000 ASTM A240/A240M
1.4021	X20Cr13	EN 10088-3	AISI 420 / UNS S42000
1.4027	GX20Cr14	EN 10283	ASTM A743/A743M Grade CA40 / UNS J91153
1.4034	X46Cr13	EN 10088-3	AISI 420C

1.4057	X17CrNi16-2	EN 10088-3	AISI 431
1.4059	GX22CrNi17	SEW 410	ASTM A743 Grade CB30
1.4112	X90CrMoV18	EN ISO 4957	
1.4122	X39CrMo17-1	EN 10088-1 (Bezeichnungsnorm)	
1.4301	X5CrNi18-10	EN 10088-3	AISI 304 / UNS S30400 ASTM A182/A182M F304 (Schmiedeteile) GB/T 20878 06Cr19Ni10
1.4305	X8CrNi18-9	EN 10088-3	AISI 303
1.4307	X2CrNi18-9	EN 10088-3	AISI 304L / UNS S30403 ASTM A240/A240M (Flachprodukte)
1.4308	GX5CrNi19-10	DIN EN 10283	ASTM A351 CF8
1.4309	GX2CrNi19-11	DIN EN 10283	ASTM A351 CF3
1.4310	X10CrNi18-8	EN 10088-3	AISI301 SUS 301
1.4313	X3CrNiMo13-4	EN 10088-3	UNS S41500 ASTM A182/A182M F6NM (Schmiedeteile)
1.4317	GX4CrNi13-4	DIN EN 10283	ASTM A743 CA6NM
1.4404	X2CrNiMo17-12-2	EN 10088-3	AISI 316L / UNS S31603 ASTM A240/A240M (Flachprodukte)
1.4408	GX5CrNiMo19-11-2	DIN EN 10283	ASTM A351 CF8M AISI 316
1.4409	GX2CrNiMo19-11-2	DIN EN 10283	ASTM A351 CF3M AISI 316 L
1.4462	X2CrNiMoN22-5-3	EN 10088-3	UNS S31803/S32205 ASTM A182/A182M F51 (Schmiedeteile)
1.4468	GX2CrNiMoN25-6-3	EN 10283	
1.4470	GX2CrNiMoN22-5-3	EN 10283	ASTM A890/A995 Grade 4A (CD3MN / UNS J92205)
1.4517	GX2CrNiMoCuN25-6-3-3	EN 10283	
1.4541	X6CrNiTi18-10	EN 10088-3	AISI 321 / UNS S32100 ASTM A182/A182M F321 (Schmiedeteile)
1.4542	X5CrNiCuNb16-4	EN 10088-3	ASTM A564 17-4PH AISI 630
1.4550	X6CrNiNb18-10	EN 10088-3	AISI 347 / UNS S34700 ASTM A182/A182M F347 (Schmiedeteile)
1.4552	GX5CrNiNb19-11	EN 10283	ASTM A351/A351M CF8C ASTM A743/A743M CF8C
1.4571	X6CrNiMoTi17-12-2	EN 10088-3	AISI 316Ti ASTM A182/A182M F316Ti (Schmiedeteile)
1.4581	GX5CrNiMoNb19-11-2	EN 10283	ASTM A351/A351M CF10MC ASTM A743/A743M CF10MC
1.4832	GX25CrNiSi20-14	EN 10295	AISI 309
1.4848	GX40CrNiSi25-20	EN 10295	AISI 310
1.4901	X10CrWMoVNB9-2	DIN EN 10216-2	VdTÜV-Werkstoffblatt 552/3 ASTM A335/A335M P92 (Rohr) ASTM A182/A182M F92 (Schmiedeteil)
1.4903	X10CrMoVNB9-1	DIN EN 10216-2	VdTÜV-Werkstoffblatt 511/3 ASTM A335/A335M P91 (Rohr) ASTM A182/A182M F91 (Schmiedeteil)
1.5026	56Si7	EN 10089	GB/T 1222 55Si2Mn
1.5028	65Si7	EN 10089	GB/T 1222 60Si2Mn
1.5217	20MnV6	EN 10294-1	GB/T 3077 20MnV
1.5415	16Mo3	EN 10028-2	16Mo3 ASTM A204 GrB
1.5529	27MnB5	DIN EN ISO 683-2	GB/T 3077 27MnB
1.5530	20MnB5	DIN EN ISO 683-2	GB/T 3077 20MnB
1.5531	30MnB5	DIN EN ISO 683-2	GB/T 3077 30MnB
1.5921	G15CrNi6	EN 10293	
1.6220	G20Mn5	EN 10293	ASTM A352 Gr. LCC
1.6368	15NiCuMoNb5-6-4	EN 10216-2	VdTÜV WB377/3 WB36
1.6523	20NiCrMo2-2	EN ISO 683-3	AISI 8620
1.6580	30CrNiMo8	EN ISO 683-2	BS 823M30
1.6582	34CrNiMo6	EN ISO 683-2	AISI 4340H
1.7035	41Cr4	EN ISO 683-2	GB/T 3077 40Cr

1.7131	16MnCr5	EN ISO 683-3	GB/T 3077 16CrMnH
1.7132	G16MnCr5	DIN EN 10293	SAE/AISI 5115 GB/T 3077 20CrMn
1.7147	20MnCr5	EN ISO 683-3	GB/T 3077 20CrMn
1.7185	33MnCrB5-2	EN ISO 683-2	
1.7213	25CrMoS4	EN ISO 683-2	GB/T 3077 30CrMo
1.7218	25CrMo4	EN ISO 683-2	GB/T 3077 30CrMo
1.7221	G26CrMo4	EN 10293	ASTM A487/A487M Grade 4C SAE/AISI 4130
1.7225	42CrMo4	EN ISO 683-2	ASTM A29 Grade4140 AISI 4140 GB/T 3077 42CrMo
1.7227	42CrMoS4	EN ISO 683-2	GB/T 3077 42CrMo
1.7228	50CrMo4	EN ISO 683-2	
1.7231	G42CrMo4	EN 10293	SAE/AISI 4140
1.7242	G16CrMo4	EN 10293	
1.7335	13CrMo4-5	DIN EN 10216-2	ASTM A182/A182M F11/F12 (Schmiedeteil)
1.7357	G17CrMo5-5	DIN EN 10213	ASTM A217 WC6
1.7379	G17CrMo9-10	DIN EN 10213	ASTM A217 WC9
1.7380	10CrMo9-10	DIN EN 10216-2	ASTM A182/A182M F22 (Schmiedeteil)
1.7383	11CrMo9-10	DIN EN 10216-2	ASTM A182/A182M F22 (Schmiedeteil)
1.8159	51CrV4	DIN EN ISO 683-2	SAE 6150 ASTM A29 Grade 6150 GB/T 3077 50CrVA
1.8519	31CrMoV9	DIN EN ISO 683-5	
1.8868	P355QL1	DIN EN 10222-4	
1.8869	P355QL2	DIN EN 10222-4	
1.8901	S460N	EN 10025-3	
1.8969	S600MC	EN 10149-2	QStE600TM
2.0065	Cu-ETP / CW004A	EN 13601	E-Cu 58 GB/T 5231 T2
2.0090	Cu-DHP / CW024A	EN 12449	GB/T 5231 TP2
2.0265	CuZn30 / CW505L	EN 12164	GB/T 5231 H70
2.0321	CuZn37 / CW508L	EN 12164	GB/T 5231 H63
2.0401	CuZn39Pb3 / CW614N	EN 12164	
2.0402	CuZn40Pb2 / CW617N	EN 12164	
2.0966	CuAl10Ni5Fe4 / CW307G	EN 12163	GB/T 5231 QAl10-4-4
2.1301	ZnAl4Cu1 (ZP0410)	EN 12844	Zamak 5 JIS ZDC1 Z410
2.1302	ZnAl4 (ZP0400)	EN 12844	Zamak 3 JIS ZDC2 Z400
2.1303	ZnAl4Cu3 (ZP0430)	EN 12844	Zamak 2 Z430
2.4680	G-NiCr50Nb	EN 10295	
3.0255	EN AW-1050A	EN 573-3	AA 1050 GB/T 3190 1050A
3.0517	EN AW-3003	EN 573-3	AA 3003 GB/T 3190 3003
3.1255	EN-AW-2014	EN 573-3	AA 2014
3.1325	EN-AW-2017A	EN 573-3	AA 2017/2017A
3.1645	EN AW-2007	EN 573-3	GB/T 3190 2007
3.2163	EN AC-46200 (AlSi8Cu3)	EN 1706	EN AC AlSi8Cu3 AA A380.0 (ASTM B85/B85M) JIS ADC10 GB/T 15115 YL112
3.2163	EN AC-46000 (AlSi9Cu3(Fe))	EN 1706	EN AC AlSi9Cu3 AA A380.0 (ASTM B85/B85M) JIS ADC10 GB/T 15115 YL112
3.2315	EN-AW-6082	EN 573-3	AA 6082
3.2371	EN AC-42100 (AlSi7Mg0.3)	EN 1706	AlSi7Mg AA 356 JIS AC4C GB/T 1173 ZL101

3.2381	EN AC-43000 (AlSi10Mg(a))	EN 1706	
3.2382	EN AC-43400 (AlSi10Mg(Fe))	EN 1706	GD-AlSi10Mg AA 360 JIS ADC3
3.2383	EN AC-43200 (AlSi10Mg(Cu))	EN 1706	
3.2581	EN AC-44200 (AlSi12(a))	EN 1706	G-AlSi12
32.582	EN AC-44300 (AlSi12(Fe))	EN 1706	GD-AlSi12
3.2583	EN AC-47000 (AlSi12(Cu))	EN 1706	G-AlSi12(Cu)
3.2982	EN AC-47100 (AlSi12Cu1(Fe))	EN 1706	GD-AlSi12(Cu)
3.3206	EN AW-6060	EN 573-3	AA 6060
3.3211	EN AW-6061	EN 573-3	AA 6061
3.3261	EN AC-51400	EN 1706	G-AlMg5Si AA B514 JIS ADC6 GB/T 15115 YL302
3.3523	EN-AW-5052	EN 573-3	AA 5052
3.3535	EN AW-5754	EN 573-3	AA 5754
3.3541	EN AC-51100 (AlMg3(a))	EN 1706	G-AlMg3
3.3547	EN AW-5083	EN 573-3	AA 5083
3.4335	EN AW-7020	EN 573-3	AA 7020
3.4365	EN-AW-7075	EN 573-3	AA 7075
5.1200	EN-GJL-150	EN 1561	GG-15
5.1300	EN-GJL-200	EN 1561	GG-20
5.1301	EN-GJL-250	EN 1561	GG-25
5.1302	EN-GJL-300	EN 1561	GG-30
5.3103	EN-GJS-400-18-LT	EN 1563	GGG-40-LT
5.3106	EN-GJS-400-15	EN 1563	GGG-40 GB/T 1348 QT400-15 ASTM A536 Grade 60-40-18
5.3107	EN-GJS-450-10	EN 1563	GGG-45
5.3200	EN-GJS-500-7	EN 1563	GGG-50 GB/T 1348 QT500-7 ASTM A536 Grade 80-55-06
5.3201	EN-GJS-600-3	EN 1563	GGG-60 GB/T 1348 QT600-3 ASTM A536 Grade 100-70-03
5.3300	EN-GJS-700-2	EN 1563	GGG-70
5.3400	EN-GJS-800-10	DIN EN 1564	ADI 800
5.3402	EN-GJS-900-8	DIN EN 1564	ADI 900
5.3403	EN-GJS-1050-6	DIN EN 1564	ADI 1050
5.3404	EN-GJS-1200-3	DIN EN 1564	ADI 1200
5.4202	EN-GJMW-400-5	EN 1562	GTW 40-05
5.4203	EN-GJMW-450-7	EN 1562	GTW 45-07
A50	Sint-A50	DIN 30910-3	JIS SBK 1218 MPIF-35-SLB
B10	Sint-B10	DIN 30910-4	JIS SBF 2118 MPIF-35-SLB
C00	Sint-C00	DIN 30910-4	MPIF Standard 35-SP F-0000-10
C01	Sint-C01	DIN 30910-4	MPIF Standard 35-SP F-0008 JIS SMF 3030
C11	Sint-C11	DIN 30910-4	MPIF Standard 35-SP FC-0205 JIS SMF 4040
C32	Sint-C32	DIN 30910-4	MPIF Standard 35-SP F-4605-K58
C39	Sint-C39	DIN 30910-4	MPIF Standard 35-SP FN-0408
C40	Sint-C40	DIN 30910-4	MPIF Standard 35-SP SS-316 AISI 316
C42	Sint-C42	DIN 30910-4	MPIF Standard 35-SP SS-430L AISI 430
C43	Sint-C43	DIN 30910-4	MPIF Standard 35-SP SS-410L AISI 410
C50	Sint-C50	DIN 30910-4	MPIF Standard 35-SP CT-1000
C60	Sint-C60	DIN 30910-4	MPIF Standard 35-SP F-0008

D00	Sint-D00	DIN 30910-4	MPIF Standard 35-SP F-0000 JIS SMF1015
D30	Sint-D30	DIN 30910-4	MPIF Standard 35-SP FD-0405 JIS SMF 5040
D32	Sint-D32	DIN 30910-4	MPIF Standard 35-SP F-4605
D39	Sint-D39	DIN 30910-4	MPIF Standard 35-SP FD-0205 JIS SMF 5030
D40	Sint-D40	DIN 30910-4	MPIF Standard 35-SP SS-316N2-33 AISI 316
E00	Sint-E00	DIN 30910-4	MPIF Standard 35-SP P-1026