

TABLA DE COMPARACIÓN GRADO DE MATERIALES

Steel								
U.S.A. AISI/SAE UNS	Mat. No.	Germany DIN	France AFNOR	Great Britain BS	Italy UNI	Sweden SS	Spain UNE	Japan JIS
Plain Steel, Cast Steel, Free-Machining Steel								
1008	1.0332	St14		14491CR		1447		
1010	1.1121	Ck10	CC10	040A10		1264		S10C
1108	1.0721	10S20		210M15				
1015	1.0401	C15	CC12	080M15	C15C16	1350	F.111	S15C
1020	1.0402	C22	CC20	050A20	C20C21	1450	F.112	S20C,S22C
1015	1.1141	Ck15	XC12	080M15	C16	1370	C15K	S15C
	1.0036	USt37-3			FE37BFU			
1213	1.0715	9SMn28	S250	230M07	CF9SMn28	1912	11SMn28	SUM22
12L3	1.0718	9SMnPb28	S250Pb		CF9SMnPb28	1914	11SMnPb28	SUM22L
1035	1.0501	C35	CC35	060A35	C35	1550	F.113	S35C
1045	1.0503	C45	CC45	080M46	C45	1650	F.114	S45C
1025	1.1158	Ck25	XC25	070M25	C25			S25C
1035	1.1183	Cf35	XC38TS	060A35	C36	1572		S35C
1045	1.1191	Ck45	XC42	080M46	C45	1672	C45K	S45C
1050	1.1213	Cf53	XC48TS	060A52	C53	1674		S50C
ASTMA204GrA	1.5415	15Mo3	15D3	1501-240	16Mo3KW	2912	16Mo3	
4520	1.5423	16Mo5		1503-245-420	16Mo5		16Mo5	SB450M
	1.005	St50-2			FE50			SM50YA
	1.7242	16CrMo 4	18CrMo4			18CrMo4		
A387Gr.12Cl.	1.7337	16CrMo 4 4			A18CrMo45KW			
	1.7362	12CrMo 19 5	Z10CD5.05	3606-625	16CrMo205			
	1.006	St60-2			FE60-2			SM570
1055	1.0535	C55		070M55	C55	1655		S55C
1060	1.0601	C60	CC55	080A62	C60			S60C
1055	1.1203	Ck55	XC55	070M55	C50		C55K	S55C
1060	1.1221	Ck60	XC60	080A62	C60	1678		S58C
	1.1545	C1051			C100KU			SK3
	1.1545	C105W1			C100KU			SK3
	1.007	St70-2			FE70-2			
	1.7238	49CrMo4						
	1.7561	42CrV6						
	1.7701	51CrMoV4	51CDV4		51CrMoV4			

Low-Alloy Steel, Cast Steel, Free-Machining Steel								
L3	1.2067	100Cr6	Y100C6	BL3			100Cr6	SUJ2
U.S.A. AISI/SAE UNS	Mat. No.	Germany DIN	France AFNOR	Great Britain BS	Italy UNI	Sweden SS	Spain UNE	Japan JIS
L2	1.221	115CrV3	100C3		107CrV3KU			
	1.2241	51CrV4						
	1.2419	105WCr6	105WC13		10WCr6	2140	105WCr5	SKS31
	1.2419	105WCr6	105WC13		107WCr5KU			SKS31
S1	1.2542	45WCrV7		BS1	45WCrV8KU	2710	45WCrSi8	
S1	1.255	60WCrV7	55WC20		58WCr9KU	~2710		
L6	1.2713	55NiCrMoV6	55NCDV7				F.520.S	SKH1;SKT4
	1.2721	50NiCr13				~2550		
	1.2762	75CrMoNiW67						
	1.2762	75CrMoNiW67						
O2	1.2842	90MnCrV8	90MV8	BO2	88MnV8KU			
52100	1.3505	100Cr6	100C6	534A99	100Cr6	2258		SUJ2
ASTMA350LF5	1.5622	14Ni6	16N6		14Ni6		15Ni6	
3415	1.5732	14NiCr10	14NC11		16NiCr11		15NiCr11	SNC415(H)
3415;3310	1.5752	14NiCr14	12NC15	655M13				SNC815(H)
9840	1.6511	36CrNiMo4	40NCD3	816M40	38NiCrM04(KB)		33NiCrMo4	SNCM447
8620	1.6523	21NiCrMo2	20NCD2	805M20	20NiCrMo2	2506	20NiCrMo2	SNCM220(H)
8740	1.6546	40NiCrMo22		311-TYPE7	40NiCrM02(KB)		40NiCrMo2	SNCM240
4340	1.6582	35CrNiMo6	35NCD6	817M40	35NiCrMo6(KB)	2541		SNCM447
	1.6587	17CrNiMo6	18NCD6	820A16			14NiCrMo13	
	1.6657	14NiCrMo34		832M13	15NiCrMo13		14NiCrMo131	
5132	1.7033	34Cr4	32C4	530A32		34Cr4(KB)	35Cr4	SCR430(H)
5140	1.7035	41Cr4	42C4	530M40			42Cr4	SCR440(H)
5140	1.7045	42Cr4	42C4TS	530A40	41Cr4	2245	42Cr4	SCR440
5115	1.7131	16MnCr5	16MC5	(527M20)	16MnCr5	2511	16MnCr5	SCR415
5155	1.7176	55Cr3	55C3	527A60				SUP9(A)
4130	1.7218	25CrMo4	25CD4	1717CDS110	25CrMo4(KB)	2225	55Cr3	SM420;SCM430
4137;4135	1.722	34CrMo4	35CD4	708A37	35CrMo4	2234	34CrMo4	SCM432;SCCRM3
Plain Steel, Cast Steel, Free-Machining Steel								
4140;4142	1.7223	41CrMo4	42CD4TS	708M40	41CrMo4	2244	42CrMo4	SCM440
4140	1.7225	42CrMo4	42CD4	708M40	42CrMo4	2244	42CrMo4	SCM440(H)
	1.7262	15CrMo5	12CD4			2216	12CrMo4	SCM415(H)
ASTMA182	1.7335	13CrMo4 4	15CD3.5/4.5	1501-620-Gr27	14CrMo45		14CrMo45	SPVAF12
	1.7361	32CrMo12	30CD12	722M24	32CrMo12	2240	F.124.A	
ASTMA182F.22	1.738	10CrMo9 10		1501-622Gr31;45				SPVA,SCMV4

	1.7715	14MoV6 3		1503-660-440			13MoCrV6	
6150	1.8159	50CrV4	50CrV4	735A50	50CrV4	2230	51CrV4	SUP10
U.S.A.								
AISI/SAE	Mat.	Germany	France	Great Britain	Italy	Sweden	Spain	Japan
UNS	No.	DIN	AFNOR	BS	UNI	SS	UNE	JIS
6150	1.8159	50CrV4		735A50	51CrV4	2230		SUP10
E50100	1.3501	100Cr2		100C2				
3135	1.571	36NiCr6		35NC6	640A35			SNC236
3435	1.5736	36NiCr10		30NC11				SNC631(H)
	1.5755	31NiCr14		18NC13	653M31			SNC836
	1.7733	24CrMoV55		20CDV6			21CrMoV511	
	1.7755	GS-45CrMoV104						
	1.807	21CrMoV511					35NiCr9	
	1.8509	41CrALMo7	40CAD6,12	905M39	41CrAlMo7	2940	41CrAlMo7	SACM645
	1.8523	39CrMoV139		897M39	36CrMoV12			
	1.2311	40CrMnMo7			35CrMo8KU			
	1.4882	X50CrMnNiNbN219	Z50CMNNb21.09					
	1.5864	35NiCr18						
High-Alloy Steel, Cast Steel								
H11	1.2343	X38CrMoV51	Z38CDV5	BH11	X37CrMoV51KU		X37CrMoV5	SKD6
H13	1.2344	X40CrMoV51	Z40CDV5	BH13	X40CrMoV511KU	2242	X40CrMoV5	SKD61
D2	1.2379	X155CrVMo121	Z160CDV12	BD2	X155CrVMo121KU			SKD11
	1.2436	X210CrW12			X215CrW121KU	2312	X210CrW12	SKD2
H21	1.2581	X30WCrV93	Z30WCV9	BH21	X30WCrV93KU		X30WCrV9	SKD5
	1.2601	X 165CrMoV12			X165CrMoW12KU	2310	X160CrMoV12	
H12	1.2606	X37CrMoW 51	Z35CWDV5	BH12	X35CrMoW05KU		F.537	SKD62
ASTMA353	1.5662	X8Ni9		1501.509; 50	X10Ni9		XBNI09	SL9N53
2515	1.568	12Ni19	Z18N5					
	1.3202	S12-1-4-5		BT15	HS12-1-5-5		12-1-5-5	
	1.3207	S10-4-3-10	Z130WKCDV	BT42	HS10-4-3-10			SKH57
T15	1.3243	S6-5-2-5	KCV06-05-05-04-02		HS6-5-2-5	2723	6-5-2-5	SKH55
	1.3246	S7-4-2-5	Z110WKCDV07-05-04		HS7-4-2-5	7-4-2-5	M35	
	1.3247	S2-10-1-8	Z110DKCWV09-08-04	BM42	HS2-9-1-8	2-10-1-8	M41	SKH51
M42	1.3249	S2-9-2-8		BM34			2-9-2-8	
M35	1.3343	S6-5-2	Z85WDCV	BM2	HS6-5-2-5	2722		SKH9; SKH51
Stainless Steel, Cast Steel								
403	1.4	X6Cr13	Z6C13	403S17	X6Cr3	2301	F.3110	SUS403
	1.4001	X6Cr14					F.8401	410S, 429
405	1.4002	X6CrAl13	Z8CA12	405S17	X6CrAl13			SUS405
SUS410	1.4006	(G-)X10Cr13	Z10C13	410S21	X12Cr13	2302	F.3401	SUS410

430	1.4016	X8Cr17	Z8C17	430S15	X8Cr17	2320	F.3113	SUS430
420	1.4021	X20Cr13	Z20C13	420S37	X20Cr13	2303		SUS420J1
U.S.A.								
AISI/SAE	Mat.	Germany	France	Great Britain	Italy	Sweden	Spain	Japan
UNS	No.	DIN	AFNOR	BS	UNI	SS	UNE	JIS
	1.4027	G-X20Cr14	Z20C13M	420C29				SCS2
	1.4086	G-X120Cr29		452C11				
430F	1.4104	X12CrMoS17	Z10CF17	441S29	X10CrS17	2383	F.3117	SUS430F
434	1.4113	X6CrMo17	Z8CD1701	434S17	X8CrMo17	2325		SUS434
	1.434	G-X40CrNi274						
S31500	1.4417	X2CrNiMoSi195				2376		
	1.472	X20CrMo13						
405	1.4724	X10CrA113	Z10C13	403S17	X10CrA112		F.311	SUS405
430	1.4742	X10CrA118	Z10CAS18	430S15	X8Cr17		F.3113	SUS430
446	1.4762	X10CrA124	Z10CAS24		X16Cr26	2322		SUH446
	1.4034	X46Cr13	Z40CM	420S45	X40Cr14	2304	F.3405	
431	1.4057	X20CrNi17	Z6CNi6.02	431S29	X16CrNi16	2321		SUS431
	1.4125	X105CrMo17	Z100CD17		X 105CrMo17			SUS440C
Stainless Steel and Cast Iron								
Austenitic Stainless Steel								
304	1.4301	X5CrNi189	Z6CN18.09	304S15	X5CrNi1810	2332	F.3551	SUS304
301	1.431	X12CrNi177	Z12CN17.07	301S21	X2CrNi1807	2331	F.3517	SUS301
304LN	1.4311	X2CrNi1810	Z2CN18.10	304S62	X2CrNi1810	2371		SUS304LN
	1.4312	G-X10CrNi188	Z10CN18.9M	302C25				
304	1.435	X5CrNi189	Z6CN18.09	304S31	X5CrNi1810	2332/2333	F.3551	
S32304	1.4362	X2CrNiN234	Z2CN23-04AZ			2327		
316	1.4401	X5CrNiMo17122	Z6CND17.11	316S16	X5CrNiMo1712	2347	F.3543	SUS316
316L	1.4404	X2CrNiMo1810	Z2CND17.12	316S12	X2CrNiMo1712	2343/2348/2553		SUS316
	1.441	G-X10CrNiMo189	Z5CND20.12M					
316LN	1.4429	X2CrNiMoN17133	Z2CND17.13	316S63	X2CrNiMoN1713	2375		SUS316LN
316L	1.4435	X2CrNiMo18143	Z2CND17.12	316S13	X2CrNiMo1712	2353		SCS16
316	1.4436	X5CrNiMo17133	Z6CND18-12-03	316S33	X8CrNiMo1713	2343/2347		SUS316
317L	1.4438	X2CrNiMo18164	Z2CND19.15	317S12	X2CrNiMo1816	2367		SUS317L
	1.45	G-X7NiCrMoCuNb2520	Z3NCDU25.20M					
321	1.4541	X10CrNiMoTi1810	Z6CNT18.10	321S12	X6CrNiTi1811	2337	F.3553F.3523	SUS321
347	1.455	X10CrNiNb	Z6CNNb18.10	347S17	X6CrNiNb1811	2338	F.3552F.3524	SUS347
	1.4552	G-X7CrNiNb189	Z4CNNb19.10M	347C17				
316Ti	1.4571	X10CrNiMoTi1810	Z6NDT17.12	320S17	X6CrNiMoTi1712	2350	F.3535	SUS316TI
318	1.4583	X10CrNiMoNb1812	Z6CNDN1713B		X6CrNiMoNb			
	1.4585	G-X7CrNiMoCuNb1818			X6CrNiMoTi1712			

309	1.4828	X15CrNiSi2012	Z15CNS20.12	309S24				SUH309
310S	1.4845	X12CrNi2521	Z12CN2520	310S24	X6CrNi2520	2361	F.331	SUH310; SUS310S
U.S.A.								
AISI/SAE	Mat.	Germany	France	Great Britain	Italy	Sweden	Spain	Japan
UNS	No.	DIN	AFNOR	BS	UNI	SS	UNE	JIS
Austenitic/Ferritic Stainless Steel (Duplex)								
S32900	1.446	X8CrNiMo275				2324		SUS329J1
	1.4462	X2CrNiMoN2253	Z2CND22-05-03			2977		
	1.4821	X20CrNiSi254	Z20CNS25.04					
	1.4823	G-X40CrNiSi274						
	Gray Cast Iron							
CLASS20	0.601	GG10	Ft10D		G10	110		FC100
CLASS25	0.6015	GG15	Ft15D	GRADE150	G15	115	FG15	FC150
CLASS30	0.602	GG20	Ft20D	GRADE220	G20	120	FG20	FC200
CLASS35	0.6025	GG25	Ft25D	GRADE260	G25	125	FG25	FC250
CLASS45	0.603	GG30	Ft30D	GRADE300	G30	130	FG30	FC300
CLASS50	0.6035	GG35	Ft35D	GRADE350	G35	135	FG35	FC350
CLASS55	0.604	GG40	Ft40D	GRADE400		140		FC400
Gray Cast Iron with Nodular Graphite								
	0.7033	GGG35.3				0717-15		FCD350
60-40-18	0.704	GGG40	FCS400-12	SNG420/12	GGG40	0717-02	GGG40	FCD400
	0.7043	GGG40.3	FGS370-17	SNG370/17		0717-12		FCD400
80-55-06	0.705	GGG50	FGS500-7	SNG500/7	GGG50	0727-02	GGG50	FCD500
	0.706	GGG60	FGS600-3	SNG600/3	GGG60	0732-03	GGG60	FCD600
100-70-03	0.707	GGG70	FGS700-2	SNG700/2	GGG70	0737-01	GGG70	FCD700
White malleable Cast Iron								
	0.804	GTW-40	MB40-10	W410/4	GMB40		GTW40	
	0.8045	GTW-45			GMB45		GTW45	
	0.8055	GTW-55					GTW55	
	0.8065	GTW-65					GTW65	
32510	0.8135	GTS-35	MN35-10	B340/12		810	GTS35	
40010	0.8145	GTS-45		P440/7		852	GTS45	
	0.8035	GTW-35	MB35-7	W340/3			GTW35	
50005	0.8155	GTS-55	MP50-5	P510/4		854	GTS55	
70003	0.8165	GTS-65	MP60-3	P570/3		856	GTS65	
90001	0.817	GTS-70	M870-2	P690/2		0862; 0864	GTS70	
Aluminium Alloys								
1000	3.0255	Al99.5	A59050C	L31/34/36				
	3.3315	AlMg1						
	3.1655	AlCuSiPb						

	3.1754	G-AlCu5Ni1,5	3.4345	AlZnMgCu0,5	AZ4GU/9051	L86	811-04	
	3.2373	G-AISI9Mg						
U.S.A.								
AISI/SAE	Mat.	Germany	France	Great Britain	Italy	Sweden	Spain	Japan
UNS	No.	DIN	AFNOR	BS	UNI	SS	UNE	JIS
	3.2381	G-AISI10Mg						
	3.2382	GD-AISI10Mg						
A360.2	3.2383	G-AISI10Mg (Cu)		LM9		4253		
A360.2	3.2383	GK-AISI10Mg (Cu)		LM9		4253		
A413.2	3.2581	G-AISI12		LM6		4261		
A413.0	3.2582	GD-AISI12				4247		A6061
A413.1	3.2583	G-AISI12 (Cu)		LM20		4260		ADC12
GD-AISI12	3.3561	G-ALMg5	A-SU 12	LN5		4252		AC4A
ZE41	3.5101	G-MgZn4SE1Zr1	G-Z4TR	MAG5				
EZ33	3.5103	MgSE3Zn2Zr1	G-TR3Z2	MAG6				
QE22	3.5106	G-MgAg3SE2Zr1	G-Ag22,5	MAG12				
AZ81	3.5812	G-MgAl8Zn1	G-A9	MAG1				
AZ91	3.5912	G-MgAl9Zn1	G-A9Z1	MAG7				
	2.1871	G-AlCu4TiMg						
4218B	3.2371	G-AISI7Mg						
Copper Alloys								
C93200	2.109	G-CuSn7ZnPb	U-E7Z5Pb4					
C83600	2.1096	G-CuSn5ZnPb	U-E5Pb5Z5	LG2				
	2.1098	G-CuSn2ZnPb						
C93700	2.1176	G-CuPb10Sn	U-E10Pb10	LB2				
C93800	2.1182	G-CuPb15Sn	U-Pb15E8	LB1				
C23000	2.024	CuZn15	CuZn15	CZ102				
C26000	2.0265	CuZn30	CuZn30	CZ106				
C27200, C27700	2.0321	CuZn37	CuZn36, CuZn37	CZ108	C2700, C2720			
C86500	2.0592	G-CuZn35Al1	U-Z36N3	HTB1				
C86200	2.0596	G-CuZn34Al2	U-Z36N3	HTB1				
C94100	2.1188	G-CuPb20Sn	U-Pb20	LB5				
C81500	2.1292	G-CuCrF35		CC1-FF				
C18200	2.1293	CuCrZr	U-Cr0,8Zr	CC102				
C63000	2.0966	CuAl10Ni5Fe4	U-A10N	Ca104				
B-148-52	2.0975	G-CuAl10Ni						
C90700	2.105	G-CuSn10		CT1				
C90800	2.1052	G-CuSn12	UE12P	Pb2				

Nylon, Plastics, Rubbers, Phenolics and Resins • Carbon and Graphite Composites, brush alloys, Kevlar, Graphite(280 - 400 HB, 30 - 40 HRC) • MMC's (Aluminium-based Metal Matrix Composites)

U.S.A. AISI/SAE UNS	Mat. No.	Germany DIN	France AFNOR	Great Britain BS	Italy UNI	Sweden SS	Spain UNE	Japan JIS
High-Temp Alloys								
Super-Alloys Fe-based					US Trade Designation			
N08800	1.4558	X2NiCrAlTi3220		NA15	Incoloy 800			
N08028	1.4563	X1NiCrMoCuN31274	Z1NCDU31.27					
N08330	1.4864	X12NiCrSi3616	Z12NCS35.16	NA17				SUH330
	1.4958	X5NiCrAlTi3120						
	1.4977	X40CoCrNi2020	Z42CNKDOWNb					
S66286					A-286			
S41800					Greek Ascology			
R30556					Haynes 556 (HS556)			
R30155					N155			
Super-Alloys Co-based					US Trade Designation			
R30188					Haynes 188			
R30605					L605 (Haynes 25)			
					MARM-302, 322, 509			
					Stellite 6, 21, 31			
Super-alloys Ni-based					US Trade Designation			
	2.436	NiCu30Fe	NU30	NA13	Monel 400			
	2.461	NiMo16Cr16Ti			Hastelloy C-4			
N06075	2.463	NiCr20Ti	NC20T	HR5, 203-4	Nimonic 75			
	2.4642	NiCr29Fe	NC30Fe		Inconel 690			
N10276	2.481	G-NiMo30			Hastelloy C			
N06625	2.4856	NiCr22Mo9Nb	NC22FeDNb	NA21	Inconel 625			
N08825	2.4858	NiCr21Mo	NC21FeDU	NA16	Incoloy 825			
	2.4375	NiCu30 Al	NU30AT	NA18	Monel K-500			
N07718	2.4668	NiCr19FeNbMo	NC19FeNb		Inconel 718			
N07750	2.4669	NiCr15Fe7TiAl	NC15TNbA		Inconel X-750			
N10001	2.4685	G-NiMo28			Hastelloy B			
N00751	2.4694	NiCr16Fe7TiAl			Inconel 751			
Titanium and titanium alloys					US Trade Designation			
R50250	3.7025	Ti 1		2TA1				
	3.7124	TiCu2		2TA21-24				
	3.7195	TiAl3V2.5						
R52250	3.7225	Ti1Pd		TP1				
	3.7115	TiAl5Sn2						
U.S.A. AISI/SAE	Mat.	Germany	France	Great Britain	Italy	Sweden	Spain	Japan

UNS	No.	DIN	AFNOR	BS	UNI	SS	UNE	JIS
R54620	3.7145	TiAl6Sn2Zr4Mo2Si						
R56400	3.7165	TiAl6V4	T-A6V	TA10-13; TA28	TiAl6V4			
R56620	3.7175	TiAl6V6Sn2			Ti6V6Al2Sn			
	3.7185	TiAl4Mo4Sn2		TA45-51; TA57				
Hardened Materials								
White Cast Iron								
Ni- Hard 2	0.962	G-X260NiCr42		Grade 2A		0512-00		
Ni- Hard 1	0.9625	G-X330NiCr42		Grade 2B		0513-00		
Ni- Hard 4	0.963	G-X300CrNiSi952						
	0.9635	G-X300CrMo153						
Hardened Cast Iron								
	0.964	G-X300CrMoNi1521						
	0.9645	G-X260CrMoNi2021						
A532IIIA25%Cr	0.965	G-X260Cr27		Grade 3D		0466-00		
	0.9655	G-X300CrMo271						
A532IIIA25%Cr	0.9655	G-X300CrMo271		Grade 3E				

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