

Carbon Steels and Alloy Steels for Machine Structural Use

Japan Industrial Standards		Steel types in foreign standards					
Standard No. Name	Symbol	I S O 683/1.10.11 ⁵⁾	AISI SAE	BS 970 Part1.3 BS EN 10083-1,2	DIN EN 10084 DIN EN 10083-1,2	NF A35-551 NF EN 10083-1,2	Γ O C T 4543
JIS G 4051 Carbon steels for machine structural use	S10C	C10	1010	040A10 045A10 045M10	C10E C10R	XC10	—
	S12C	—	1012	040A12	—	XC12	—
	S15C	C15E4 C15M2	1015	055M15	C15E C15R	—	—
	S17C	—	1017	—	—	XC18	—
	S20C	—	1020	070M20 C22 C22E C22R	C22 C22E C22R	C22 C22E C22R	—
	S22C	—	1023	—	—	—	—
	S25C	C25 C25E4 C25M2	1025	C25 C25E C25R	C25 C25E C25R	C25 C25E C25R	—
	S28C	—	1029	—	—	—	25 Γ
	S30C	C30 C30E4 C30M2	1030	080A30 080M30 C30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30 Γ
	S33C	—	—	—	—	—	30 Γ
	S35C	C35 C35E4 C35M2	1035	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35 Γ
	S38C	—	1038	—	—	—	35 Γ
	S40C	C40 C40E4 C40M2	1040	080M40 C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40 Γ
	S43C	—	1043	080A42	—	—	40 Γ
	S45C	C45 C45E4 C45M2	1045	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45 Γ
	S48C	—	—	080A47	—	—	45 Γ
	S50C	C50 C50E4 C50M2	1049	080M50 C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50 Γ
	S53C	—	1053	—	—	—	50 Γ
	S55C	C55 C55E4 C55M2	1055	070M55 C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	—
	S58C	C60 C60E4 C60M2	1060	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60 Γ
S09CK	—	—	045A10 045M10	C10E	XC10	—	
S15CK	—	—	—	C15E	XC12	—	
S20CK	—	—	—	—	XC18	—	

ISO: International Organization for Standardization
 AISI: American Iron and Steel Institute
 SAE: Society of Automotive Engineers
 BS: British Standards

Japan Industrial Standards		Steel types in foreign standards					
Standard No. Name	Symbol	I S O 683/1.10.11 ⁵⁾	AISI SAE	BS 970 Part1.3 BS EN 10083-1,2	DIN EN 10084 DIN EN 10083-1,2	NF A35-551 NF EN 10083-1,2	Γ O C T 4543
JIS G 4102 Nickel chromium steels	SN236	—	—	—	—	—	40XH
	SN415	—	—	—	—	—	—
	SN631	—	—	—	—	—	30XH3A
	SN815	15NiCr13	—	655M13	15NiCr13	—	—
JIS G 4103 Nickel chromium steels	SNCM220	20NiCrMo2 20NiCrMoS2	8620	805A20 805M20 805A22 805M22	20NiCrMo2 20NiCrMoS2	20NCD2	—
	SNCM240	41CrNiMo2 41CrNiMoS2	8640	—	—	—	—
	SNCM415	—	—	—	—	—	—
	SNCM420	—	4320	—	—	—	20XH2M(20XH)
	SNCM431	—	—	—	—	—	—
	SNCM439	—	4340	—	—	—	—
	SNCM447	—	—	—	—	—	—
	SNCM616	—	—	—	—	—	—
	SNCM625	—	—	—	—	—	—
	SNCM630	—	—	—	—	—	—
	SNCM815	—	—	—	—	—	—
JIS G 4104 Chromium steels	SCr415	—	—	—	17Cr3 17CrS3	—	15X 15XA
	SCr420	20Cr4 20CrS4	5120	—	—	—	20X
	SCr430	34Cr4 34CrS4	5130	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X
	SCr435	34Cr4 34CrS4 37Cr4 37CrS4	5132	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X
	SCr440	37Cr4 37CrS4 41Cr4 41CrS4	5140	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
	SCr445	—	—	—	—	—	45X
	SCM415	—	—	—	—	—	—
	SCM418	18CrMo4 18CrMoS4	—	—	18CrMo4 18CrMoS4	—	20XM
	SCM420	—	—	708M20	—	—	20XM
	SCM421	—	—	—	—	—	—
JIS G 4105 Chromium molybdenum steels	SCM430	—	4131	—	—	—	30XM 30XMA
	SCM432	—	—	—	—	—	—
	SCM435	34CrMo4 34CrMoS4	4137	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM
	SCM440	42CrMo4 42CrMoS4	4140	708M40 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	—
	SCM445	—	4145	—	—	—	—
	SCM822	—	—	—	—	—	—

DIN: Deutsches Institut für Normung
 EN: European Standards
 NF: Norme Française
 Γ OCT: National standard of the former USSR

Japan Industrial Standards		Steel types in foreign standards					
Standard No. Name	Symbol	I S O 683/1.10.11 ⁵⁾	AISI SAE	BS 970 Part1.3 BS EN 10083-1,2	DIN EN 10084 DIN EN 10083-1,2	NF A35-551 NF EN 10083-1,2	Γ O C T 4543
JIS G 4106 Manganese steels and manganese chromium steels for machine structural use	SMn420	22Mn6	1522	150M19	—	—	—
	SMn433	—	1534	150M36	—	—	30 Γ 2 35 Γ 2
	SMn438	36Mn6	1541	150M36	—	—	35 Γ 2 40 Γ 2
	SMn443	42Mn6	1541	—	—	—	40 Γ 2 45 Γ 2
	SMnC420	—	—	—	—	—	—
	SMnC443	—	—	—	—	—	—
JIS G 4202 Aluminium chromium molybdenum steels	SACM645	41CrAlMo74	—	—	—	—	—
JIS G 4052 Structural steels with specified hardenability bands	SMn420H	22Mn6	1522H	—	—	—	—
	SMn433H	—	—	—	—	—	—
	SMn438H	36Mn6	1541H	—	—	—	—
	SMn443H	42Mn6	1541H	—	—	—	—
	SMnC420H	—	—	—	—	—	—
	SMnC443H	—	—	—	—	—	—
	SCr415H	—	—	—	17Cr3 17CrS3	—	15X
	SCr420H	20Cr4 20CrS4	5120H	—	—	—	20X
	SCr430H	34Cr4 34CrS4	5130H	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X
	SCr435H	34Cr4 34CrS4 37Cr4 37CrS4	5135H	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X
	SCr440H	37Cr4 37CrS4 41Cr4 41CrS4	5140H	41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
	SCM415H	—	—	—	—	—	—
	SCM418H	18CrMo4 18CrMoS4	—	—	18CrMo4 18CrMoS4	—	—
	SCM420H	—	—	708H20	—	—	—
	SCM435H	34CrMo4 34CrMoS4	4135H	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	—
	SCM440H	42CrMo4 42CrMoS4	4142H	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	—
	SCM445H	—	4145H	—	—	—	—
	SCM822H	—	—	—	—	—	—
	SNC415H	—	—	—	—	—	—
	SNC631H	—	—	—	—	—	—
SNC815H	15NiCr13	—	655H13	15NiCr13	—	—	
SNCM220H	20NiCrMo2 20NiCrMoS2	8620H	805H17 805H20 805H22	—	20NCD2	—	
SNCM420H	—	4320H	—	—	—	—	

Japan Industrial Standards		Steel types in foreign standards					
Standard No. Name	Symbol	I S O 683/1.10.11 ⁵⁾	AISI SAE	BS 970 Part1.3 BS EN 10083-1,2	DIN EN 10084 DIN EN 10083-1,2	NF A35-551 NF EN 10083-1,2	Γ O C T 4543
JIS G 4107 Alloy steel bolting materials for high temperature service	SNB5	—	501	—	—	—	—
	SNB7	42CrMo4 42CrMoS4	4140 4142 4145	708 40 709M40 42CrMo4 ¹⁾	42CrMo4 ²⁾	42CrMo4 ⁴⁾	—
	SNB16	—	—	40CrMoV4-6 ¹⁾	40CrMoV4 ³⁾	40CrMoV4-6 ⁴⁾	—
	SNB21-1 ~ 5	—	—	40CrMoV4-6 ¹⁾	40CrMoV4 ³⁾	40CrMoV4-6 ⁴⁾	—
JIS G 4108 Alloy steel bars for special application bolting materials	SNB22-1 ~ 5	42CrMo4 42CrMoS4	4142H	—	42CrMo4 ²⁾	—	—
	SNB23-1 ~ 5	—	—	E4340H	—	—	—
	SNB24-1 ~ 5	—	—	—	—	—	—
	SNB24-1 ~ 5	—	—	4340	—	—	—

Notes 1) BS EN 10259
 2) DIN 1654 Part 4
 3) DIN 17240
 4) NF EN 10259
 5) ISO683-1, 10, and 11 have been translated into JIS as JIS G 7501, G 7502, and G 7503.

Tool steel name

Rolled steel for general structures	SS400	Steel, Structure, 400 N/mm ²
Carbon steel for mechanical structures	S45C	Steel, 0.45% C
Chrome molybdenum steel	SCM435	Steel, Cr, Mo 435
Nickel chrome molybdenum steel	SNCM220	Steel, Ni, Cr, Mo, 220
Carbon tool steel	SK105	Steel, Tool, 105 (formerly SK3)
Alloy tool steel	SKS3	Steel, Tool, Special, Type 3
Alloy tool steel	SKD11	Steel, Tool, Dies, Type 11
High-speed tool steel	SKH51	Steel, Tool, High Speed, Type 51
High carbon chrome bearing steel	52100	Steel, Use, Bearing, Type 2
Stainless steel	SUS304	Steel, Use, Stainless, Type 304
Gray cast iron	FC250	Ferrum (Iron), Cast, 250 N/mm ²

Stainless Steels, Heat Resistant Steels

Standard No./name (stainless steel code)	JIS	Foreign standards							Europe standard	
		USA		UK	Germany	France	Russia (former USSR)	EN		
		UNS	AISI	BS	DIN	NF	Г OCT	Type	No.	
JIS G 4303~ 4305 Bars, hot rolled and cold rolled plates, sheets, and strips	SUS 201	S20100	201			Z12CM17-07Az		X12CrMnNi17-7-5	1.4372	
	SUS 202	S20200	202	284S16				X12CrMnNi18-9-5	1.4373	
	SUS 301	S30100	301	301S21	X12CrNi17 7	Z11CN17-08	07X16H6	X5CrNi17-7	1.4319	
	SUS 301J1				X12CrNi17 7			X2CrNi18-7	1.4318	
JIS G 4308~ 4309 Wires and rods	SUS 302	S30200	302	302S25		Z12CN18-09		X12CrNi18-9		
	SUS 302B	S30215	302B							
	SUS 303	S30300	303	303S21	X10CrNiS18 9	Z8CNF18-09		X8CrNiS18-9	1.4305	
	SUS 303Se	S30323	303Se	303S41			12X18H10E			
JIS G 4313~ 4315 Strips and wires for springs, wires for cold heading/forging	SUS 304	S30400	304	304S31	X5CrNi18 10	Z7CN18-09	08X18H10	X4CrNi18-10	1.4301	
	SUS 304L	S30403	304L	304S11	X2CrNi19 11	Z3CN19-11	03X18H11	X2CrNi19-11	1.4307	
	SUS 304N1	S30451	304N			Z6CN19-09Az		X2CrNi18-9	1.4306	
	SUS 304N2	S30452								
JIS G 4317~ 4320 Hot rolled equal leg angles, cold finished bars, blooms/billets for forgings, cold-formed sections	SUS 304LN	S30453	304LN		X2CrNi18 10	Z3CN18-10Az		X2CrNi18-10	1.4311	
	SUS 304J1									
	SUS 304J2									
	SUS 304J3	S30431	S30431							
SUS 305	SUS 305	S30500	305	305S19	X5CrNi18 12	Z8CN18-12	06X18H11	X4CrNi18-12	1.4303	
	SUS 305J1									
	SUS 305S	S30508	305S			Z10CN24-13				
	SUS 310S	S31008	310S	310S31		Z8CN25-20	10X23H18	X6CrNi25-20		
SUS 316	SUS 316	S31600	316	316S31	X5CrNiMo17 12 2	Z7CND17-12-02		X4CrNiMo17-12-2	1.4401	
	SUS 316F	S31603	316L	316S11	X5CrNiMo17 13 3	Z6CND18-12-03		X4CrNiMo17-13-3	1.4436	
	SUS 316L	S31603	316L		X2CrNiMo17 13 2	Z3CND17-12-02		X2CrNiMo17-12-2	1.4404	
	SUS 316LN	S31635	316LN		X2CrNiMo17 14 3	Z3CND17-13-03	03X17H14M3	X2CrNiMo17-13-3	1.4432	
SUS 316N	SUS 316N	S31653	316N							
	SUS 316LN	S31653	316LN		X2CrNiMo17 12 2	Z3CND17-11Az		X2CrNiMo17-11-2	1.4406	
	SUS 316Ti	S31635			X2CrNiMo17 13 3	Z3CND17-12Az		X2CrNiMo17-13-3	1.4429	
	SUS 316J1	S31635			X6CrNiMoTi17 12 2	Z6CNDT17-12	08X17H13M2T	X6CrNiMoTi17-12-2	1.4571	
SUS 317	SUS 317	S31700	317	317S16						
	SUS 317L	S31703	317L	317S12	X2CrNiMo18 16 4	Z3CND19-15-04		X2CrNiMo18-15-4	1.4438	
	SUS 317LN	S31753				Z3CND19-14Az		X2CrNiMo18-12-4	1.4434	
	SUS 317J1							X2CrNiMo17-13-5	1.4439	
SUS 321	SUS 321	S32100	321	321S31						
	SUS 321F	S32100								
	SUS 321LN	S32100								
	SUS 321J1	S32100								
SUS 329J1	SUS 329J1	S32900	329							
	SUS 329J3L	S32924	S31803			Z3CNDU22-05Az	08X21H6M2T	X2CrNiMo22-5-3	1.4462	
	SUS 329J4L	S32925	S31260			Z3CNDU25-07Az		X2CrNiMoCu25-6-3	1.4507	
	SUS 329J4L	S32925	S31260							

Standard No./name (stainless steel code)	JIS	Foreign standards							Europe standard	
		USA		UK	Germany	France	Russia (former USSR)	EN		
		UNS	AISI	BS	DIN	NF	Г OCT	Type	No.	
SUS 405	SUS 405	S40500	405	405S17	X6CrAl13	Z8CA12		X6CrAl13	1.4002	
	SUS 410L					Z3C14				
	SUS 429	S42900	429							
	SUS 430	S43000	430	430S17	X6Cr17	Z8C17	12X17	X6Cr17	1.4016	
SUS 430F	SUS 430F	S43020	430F		X7CrMoS18	Z8CF17		X6CrMoS17	1.4105	
	SUS 430LX	S43035			X6CrTi17	Z4CT17		X3CrTi17	1.4510	
	SUS 430J1				X6CrNb17			X2CrTi17	1.4520	
	SUS 430J1L							X3CrNb17	1.4511	
SUS 434	SUS 434	S43400	434	434S17	X6CrMo17 1	Z4CNb17		X6CrMo17-1	1.4113	
	SUS 436L	S43600	436			Z8CD17-01		X1CrMoTi16-1	1.4513	
	SUS 436J1L									
	SUS 444	S44400	444			Z3CDT18-02		X2CrMoTi18-2	1.4521	
SUS 445J1	SUS 445J1	S44500	445							
	SUS 445J2	S44502								
	SUS 447J1	S44700								
	SUS XM27	S44627				Z1CD26-01				
SUS 403	SUS 403	S40300	403							
	SUS 410	S41000	410	410S21	X10Cr13	Z13C13		X12Cr13	1.4006	
	SUS 410S	S41008	410S	403S17	X6Cr13	Z8C12	08X13	X6Cr13	1.4000	
	SUS 410F2									
SUS 410J1	SUS 410J1	S41025								
	SUS 416	S41600	416	416S21	X20Cr13	Z11CF13		X12CrS13	1.4005	
	SUS 420J1	S42000	420	420S29	X30Cr13	Z20C13	20X13	X20Cr13	1.4021	
	SUS 420J2	S42020	420	420S37		Z33C13	30X13	X30Cr13	1.4028	
SUS 420F	SUS 420F	S42020	420F			Z30CF13		X29CrS13	1.4029	
	SUS 420F2									
	SUS 429J1									
	SUS 431	S43100	431	431S29	X20CrNi17 2	Z15CN16-02	20X17H2	X19CrNi17 2	1.4057	
SUS 440A	SUS 440A	S44002	440A			Z70C15		X70CrMo15	1.4109	
	SUS 440B	S44003	440B							
	SUS 440C	S44004	440C			Z100CD17	95X18	X105CrMo17	1.4125	
	SUS 440F	S44020	440F							
SUS 630	SUS 630	S17400	S17400			Z6CNU17-04		X5CrNiCuNb16-4	1.4542	
	SUS 631	S17700	S17700			Z9CNA17-07	09X17H7 IO	X7CrNiAl17-7	1.4568	
	SUS 632J1									
	SUS 632J1									
JIS G 4311~ 4315 Heat resisting steel bars, plates, and sheets	SUH 31									
	SUH 35	X30CrMnNi21 4 (2)				Z35CMN21-09Az	45X14H14B2M			
	SUH 36	S63008				Z35CMN21-09Az	55X20 9AH4			
	SUH 37	S63017								
SUS 309	SUS 309	S30900	309	309S24		Z15CN24-13				
	SUS 310	S31000	310	310S24	CrNi2520	Z15CN25-20	20X25H20C2			
	SUS 330	N08330	N08330			Z12NCS35-16				
	SUS 660	S66286				Z6NCTV25-20				
SUS 21	SUS 21	S40900	409	409S19	CrAl1205	Z6CT12				
	SUH 409L				X6CrTi12	Z3CT12				
	SUH 446	S44600	446			Z12CS9	15X28			
	SUH 1	X45CrSi9-3(2)	S65007		401S45	Z40CS10	40X10C2M			
SUS 3	SUS 3					Z80CSN20-02				
	SUS 4									
	SUS 11	X500S18-2(2)					40X 9C2			
	SUH 600						20X12BHM 5 φ r			
SUH 616	S42200									

- Notes: 1. ISO: ISO TR 15510: 1997. Symbols are the same as EN. (1) ISO 4954, (2) ISO 683-15.
 2. US: UNS registration numbers and the AISI Steel Manual
 3. Europe standard: EN10088-1:1995.
 4. European countries: BS, DIN, NF, others. These national standards are to be abolished in favor of EN.
 5. OCT: 5632.

Tool Steels

Standard No./name	Symbol	Steel types in foreign standards						
		ISO	AISI ASTM	BS	DIN VDEh	NF	Г OCT	
JIS G 4401 Carbon tool steels	SK140 (formerly SK1)	TC140	—	—	—	C140E3U	Y13	
	SK120 (formerly SK2)	TC120	W1-11 1/2	—	—	C120E3U	Y12	
	SK105 (formerly SK3)	TC105	W1-10	—	C105W1	C105E2U	Y11	
	SK95 (formerly SK4)	TC 90	W1-9	—	—	C 90E2U	Y10	
	SK85 (formerly SK5)	TC 90	W1-8	—	C 80W1	C 90E2U	Y8Г	
		TC 80	—	—	—	C 80E2U	Y9	
	SK75 (formerly SK6)	TC 70	—	—	C 80W1	C 70E2U	Y8	
JIS G 4403 High speed tool steels	SKH 2	HS18-0-1	T 1	BT 1	—	HS18-0-1	P18	
	SKH 3	HS18-1-1-5	T 4	BT 4	S18-1-2-5	HS18-1-1-5	—	
	SKH 4	HS18-0-1-10	T 5	BT 5	—	HS18-0-2-9	—	
	SKH10	HS12-1-5-5	T15	BT15	S12-1-4-5	HS12-1-5-5	—	
	SKH51	HS 6-5-2	M2	BM 2	S 6-5-2	HS 6-5-2	—	
	SKH52	—	M3-1	—	—	—	—	
	SKH53	HS 6-5-3	M3-2	—	S 6-5-3	HS 6-5-3	—	
	SKH54	—	M4	BM 4	—	HS 6-5-4	—	
	SKH55	HS 6-5-2-5	—	BM35	S 6-5-2-5	HS 6-5-2-5HC	P6M5K5	
	SKH56	—	M36	—	—	—	—	
	SKH57	HS10-4-3-10	—	BT42	S10-4-3-10	HS10-4-3-10	—	
	SKH58	HS 2-9-2	M7	—	—	HS 2-9-2	—	
	SKH59	HS 2-9-1-8	M42	BM42	S 2-10-1-8	HS 2-9-1-8	—	
	JIS G 4404 Alloy tool steels	SKS11	—	F2	—	—	—	XB4
		SKS 2	105WCr1	—	—	105WCr6	105WCr5	XBГ
		SKS21	—	—	—	—	—	—
		SKS 5	—	—	—	—	—	—
SKS51		—	L6	—	—	—	—	
SKS 7		—	—	—	—	—	—	
SKS 8		—	—	—	—	C140E3UCr4	13X	
SKS 4		—	—	—	—	—	—	
SKS41		—	—	—	—	—	—	
SKS43		TCV105	W2-9 1/2	BW2	—	100V2	—	
SKS44		—	W2-8	—	—	—	—	
SKS 3		—	—	—	—	—	9XB Г	
SKS31		105WCr1	—	—	105WCr6	105WCr5	XB Г	
SKS93		—	—	—	—	—	—	
SKS94		—	—	—	—	—	—	
SKS95		—	—	—	—	—	—	
SKD 1		210Cr12	D3	BD3	X210Cr12	X200Cr12	X12	
SKD11	—	D2	BD2	—	X160CrMoV12	—		
SKD12	100CrMoV5	A2	BA2	—	X100CrMoV5	—		
SKD 4	30WCrV5	—	—	—	X32WCrV3	—		
SKD 5	30WCrV9	H21	BH21	—	X30WCrV9	—		
SKD 6	—	H11	BH11	X38CrMoV51	X38CrMoV5	4X5M C		