

STEEL COMPOSITION OF VARIOUS GRADES

JAPAN (JIS)

Standard - G. 4802(1983)

COLD ROLLED STRIPS FOR SPRINGS

Grade	C %	Si %	Mn %	Cr %	Mo %	Ni %	P ≤ %	S ≤ %	Others %
S 50C - CSP	0.47-0.53	0.15-0.35	0.60-0.90	≤ 0.20	-	≤ 0.20	0.030	0.035	Cu ≤ 0.30; Ni + Cr ≤ 0.35
S 55C - CSP	0.52-0.58	0.15-0.35	0.60-0.90	≤ 0.20	-	≤ 0.20	0.030	0.035	Cu ≤ 0.30; Ni + Cr ≤ 0.35
S 60C - CSP	0.55-0.65	0.15-0.30	0.60-0.90	≤ 0.20	-	≤ 0.20	0.030	0.035	Cu ≤ 0.30
S 65C - CSP	0.60-0.70	0.15-0.30	0.60-0.90	≤ 0.20	-	≤ 0.20	0.030	0.035	Cu ≤ 0.30
S 70C - CSP	0.65-0.75	0.15-0.30	0.60-0.90	≤ 0.20	-	≤ 0.20	0.030	0.035	Cu ≤ 0.30
S K4 - CSP	0.90-1.10	≤ 0.35	≤ 0.50	≤ 0.20	-	≤ 0.25	0.030	0.030	Cu ≤ 0.30
S K5 - CSP	0.80-0.90	≤ 0.35	≤ 0.50	≤ 0.20	-	≤ 0.25	0.030	0.030	Cu ≤ 0.30

SPAIN (UNE)

Standard - G. 36015-77

SPRING STEELS

Standard	Designation	C %	Si %	Mn %	Cr %	Mo %	Ni %	P ≤ %	S ≤ %	others %
F1410	C-79	0.72-0.85	0.15-0.40	0.50-0.80	-	-	-	0.035	0.035	-
F1430	51 CrV4	0.48-0.55	0.15-0.40	0.70-1.00	0.90-1.20	-	-	0.035	0.035	V 0.10-0.20
F1431	55 Cr3	0.52-0.59	0.15-0.40	0.70-1.00	0.60-0.90	-	-	0.035	0.035	-
F1440	56 Si7	0.52-0.60	1.50-2.00	0.60-0.90	-	-	-	0.035	0.035	-
F1441	60 Si7	0.57-0.64	1.50-2.00	0.60-0.90	-	-	-	0.035	0.035	-
F1442	60 SiCr8	0.57-0.64	1.70-2.20	0.70-1.00	0.25-0.40	-	-	0.035	0.035	-
F1450	50 Si7	0.47-0.53	1.50-2.00	0.50-0.80	-	-	-	0.035	0.035	-
F1451	46 Si7	0.43-0.50	1.50-2.00	0.50-0.80	-	-	-	0.035	0.035	-
F1460	52CrMoV4	0.48-0.56	0.15-0.4	0.70-1.00	0.90-1.20	0.15-0.25	-	0.035	0.035	V 0.07-0.12



UNITED KINGDOM (UK) Standard BS 1449

Grade	Type	C	Si	Mn	P	S
		%	%	%	≤ %	≤ %
40	'40'Carbon	0.35 - 0.45	0.05 - 0.35	0.50 - 0.90	0.045	0.045
50	'50'Carbon	0.45 - 0.55	0.05 - 0.35	0.50 - 0.90	0.045	0.045
60	'60'Carbon	0.55 - 0.65	0.05 - 0.35	0.50 - 0.90	0.045	0.045
70	'70'Carbon	0.65 - 0.75	0.05 - 0.35	0.50 - 0.90	0.045	0.045
80	'80'Carbon	0.75 - 0.85	0.05 - 0.35	0.50 - 0.90	0.045	0.045

UNITED STATES OF AMERICA (USA) ASTM A 568

Steel Designation No.	Chemical Composition Limits, Percent			
	C	Mn	P max	S max
1040	0.36-0.44	0.60-0.90	0.030	0.035
1042	0.39-0.47	0.60-0.90	0.030	0.035
1043	0.39-0.47	0.70-1.00	0.030	0.035
1045	0.42-0.50	0.60-0.90	0.030	0.035
1046	0.42-0.50	0.70-1.00	0.030	0.035
1049	0.45-0.53	0.60-0.90	0.030	0.035
1050	0.47-0.55	0.60-0.90	0.030	0.035
1055	0.52-0.60	0.60-0.90	0.030	0.035
1060	0.55-0.66	0.60-0.90	0.030	0.035
1064	0.59-0.70	0.50-0.80	0.030	0.035
1065	0.59-0.70	0.60-0.90	0.030	0.035
1070	0.65-0.76	0.60-0.90	0.030	0.035
1074	0.69-0.80	0.50-0.80	0.030	0.035
1078	0.72-0.86	0.30-0.60	0.030	0.035
1080	0.74-0.88	0.60-0.90	0.030	0.035
1084	0.80-0.94	0.60-0.90	0.030	0.035
1085	0.80-0.94	0.70-1.00	0.030	0.035
1086	0.80-0.94	0.30-0.50	0.030	0.035
1090	0.84-0.98	0.69-0.90	0.030	0.035
1095	0.90-1.04	0.30-0.50	0.030	0.035

ITALY (UNI)**Standard 7064 (1982)**

Grade	C %	Si %	Mn %	Cr %	Mo %	Ni %	V %	P ≤ %	S ≤ %	Others %
C55	0.52-0.60	0.15-0.40	0.60-0.90	—	—	—	—	0.035	0.035	—
C60	0.57-0.65	0.15-0.40	0.60-0.90	—	—	—	—	0.035	0.035	—
C67	0.65-0.72	0.15-0.40	0.60-0.90	—	—	—	—	0.035	0.035	—
C75	0.70-0.80	0.15-0.40	0.60-0.80	—	—	—	—	0.035	0.035	—
C85	0.80-0.90	0.15-0.40	0.45-0.65	—	—	—	—	0.035	0.035	—
C100	0.95-1.05	0.15-0.40	0.40-0.60	—	—	—	—	0.035	0.035	—
50CrV4	0.48-0.55	0.15-0.40	0.70-1.00	0.90-1.20	—	—	0.10-0.20	0.035	0.035	—
48Si7	0.42-0.52	1.50-2.00	0.60-0.90	—	—	—	—	0.035	0.035	—
67SiCr5	0.62-0.72	1.20-1.40	0.40-0.60	0.20-0.40	—	—	—	0.035	0.035	—

FRANCE**Standard - 7065 (1972)**

Grade	C %	Si %	Mn %	Cr %	Mo %	Ni %	V %	P ≤ %	S ≤ %	Others %
C 10	0.07-0.12	≤ 0.35	0.30-0.70	—	—	—	—	0.035	0.035	—
C 16	0.12-0.18	≤ 0.35	0.30-0.70	—	—	—	—	0.035	0.035	—
C 20	0.18-0.24	≤ 0.40	0.40-0.80	—	—	—	—	0.035	0.035	—
C 30	0.28-0.33	≤ 0.35	0.40-0.65	—	—	—	—	0.020	0.020	—
C 31	0.27-0.34	≤ 0.40	0.50-0.80	—	—	—	—	0.035	0.035	—
C 35	0.33-0.38	≤ 0.35	0.40-0.65	—	—	—	—	0.020	0.020	—
C 36	0.32-0.39	≤ 0.40	0.50-0.90	—	—	—	—	0.035	0.035	—
C 40	0.38-0.43	≤ 0.35	0.40-0.65	—	—	—	—	0.020	0.020	—
C 41	0.37-0.44	≤ 0.40	0.50-0.90	—	—	—	—	0.035	0.035	—
C 45	0.43-0.48	≤ 0.35	0.40-0.65	—	—	—	—	0.020	0.020	—
C 46	0.42-0.50	≤ 0.40	0.50-0.90	—	—	—	—	0.035	0.035	—
C 50	0.48-0.53	≤ 0.35	0.40-0.65	—	—	—	—	0.020	0.020	—
C 51	0.47-0.55	≤ 0.40	0.60-0.90	—	—	—	—	0.035	0.035	—
C 55	0.53-0.58	≤ 0.35	0.40-0.65	—	—	—	—	0.020	0.020	—
C 56	0.52-0.60	≤ 0.40	0.60-0.90	—	—	—	—	0.035	0.035	—
C 60	0.58-0.63	≤ 0.35	0.40-0.65	—	—	—	—	0.020	0.020	—



GERMAN Standard (DIN)

Standred No.	Symbol WIN	C %	Si %	Mn %	Cr %	Mo %	Ni %	V %	B %	P ≤ %	S ≤ %
1.1231	Ck67(C67E)	0.65-0.72	0.15-0.35	0.60-0.90	—	—	—	—	—	0.035	0.035
1.1248	Ck75(C75E)	0.70-0.80	0.15-0.35	0.60-0.80	—	—	—	—	—	0.035	0.035
1.1269	Ck85(C85E)	0.80-0.90	0.15-0.35	0.45-0.65	—	—	—	—	—	0.035	0.035
1.1274	Ck101(C101E)	0.95-1.05	0.15-0.35	0.40-0.60	—	—	—	—	—	0.035	0.035
1.5022	38Si6	0.33-0.42	1.40-1.60	0.50-0.80	—	—	—	—	—	0.050	0.050
1.5023	38Si7	0.35-0.42	1.50-1.80	0.50-0.80	—	—	—	—	—	0.030	0.030
1.5024	46Si7	0.42-0.50	1.50-1.80	0.50-0.80	—	—	—	—	—	0.050	0.050
1.5025	51Si7	0.47-0.50	1.50-1.80	0.50-0.80	—	—	—	—	—	0.045	0.045
1.5026	55Si7	0.52-0.60	1.50-1.80	0.70-1.00	—	—	—	—	—	0.045	0.045
1.5028	65Si7	0.60-0.70	1.50-1.80	0.70-1.00	—	—	—	—	—	0.035	0.035
1.5029	71Si7	0.68-0.75	1.50-1.80	0.60-0.80	—	—	—	—	—	0.035	0.035
1.5142	60SiMn5	0.55-0.65	1.00-1.30	0.90-1.10	—	—	—	—	—	0.050	0.050
1.5225	51MnV7	0.48-0.55	0.15-0.35	1.60-1.90	—	—	—	0.07-0.12	—	0.035	0.035
1.7103	67SiCr5	0.62-0.72	1.20-1.40	0.40-0.60	0.40-0.60	—	—	—	—	0.035	0.035
1.7108	60SiCr7	0.57-0.65	1.50-1.80	0.70-1.00	0.20-0.40	—	—	—	—	0.030	0.030
1.7138	52MnCrB3	0.48-0.55	0.15-0.35	0.75-1.00	0.40-0.60	—	—	—	0.0008	0.035	0.035
1.7176	55Cr3	0.52-0.59	0.25-0.50	0.70-1.00	0.70-1.00	—	—	—	—	0.030	0.030
1.7701	51CrMoV4	0.48-0.56	0.15-0.40	0.70-1.10	0.90-1.20	0.15-0.25	—	0.08-0.15	—	0.030	0.030
1.8159	51CrV4/50CrV4	0.47-0.55	≤ 0.40	0.70-1.10	0.90-1.20	—	—	0.10-0.25	—	0.035	0.035

German EN 10132 - 4

Steel Designation% by mass

name	number	C %	Si %	Mn %	Cr %	Mo ≤ %	V %	Ni %	P ≤ %.	S ≤ %
C55S	1.1204	0.52 - 0.60	0.15 - 0.35	0.60 - 0.90	0.40	0.10		0.40	0.025	0.025
C60S	1.1211	0.57 - 0.65	0.15 - 0.35	0.60 - 0.90	0.40	0.10		0.40	0.025	0.025
C67S	1.1231	0.65 - 0.73	0.15 - 0.35	0.60 - 0.90	0.40	0.10		0.40	0.025	0.025
C75S	1.1248	0.70 - 0.80	0.15 - 0.35	0.60 - 0.90	0.40	0.10		0.40	0.025	0.025
C85S	1.1269	0.80 - 0.90	0.15 - 0.35	0.40 - 0.70	0.40	0.10		0.40	0.025	0.025
C90S	1.1217	0.85 - 0.95	0.15 - 0.35	0.40 - 0.70	0.40	0.10		0.40	0.025	0.025
C100S	1.1274	0.95 - 1.05	0.15 - 0.35	0.30 - 0.60	0.40	0.10		0.40	0.025	0.025
C125S	1.1224	1.20 - 1.30	0.15 - 0.35	0.30 - 0.60	0.40	0.10		0.40	0.025	0.025
48Si7	1.5021	0.45 - 0.52	1.60 - 2.00	0.50 - 0.80	0.40	0.10		0.40	0.025	0.025
56Si7	1.5026	0.52 - 0.60	1.60 - 2.00	0.60 - 0.90	0.40	0.10		0.40	0.025	0.025
51CrV4	1.8159	0.47 - 0.55	max. 0.40	0.70 - 1.10	0.90 - 1.20	0.10	0.10 - 0.25	0.40	0.025	0.025
80CrV2	1.2235	0.75 - 0.85	0.15 - 0.35	0.30 - 0.50	0.40 - 0.60	0.10	0.15 - 0.25	0.40	0.025	0.025
75Ni8	1.5634	0.72 - 0.78	0.15 - 0.35	0.30 - 0.50	< 0.15	0.10		1.80 - 2.10	0.025	0.025
125Cr2	1.2002	1.20 - 1.30	0.15 - 0.35	0.25 - 0.40	0.40 - 0.60	0.10		0.40	0.025	0.025

- Elements not quoted in this table shall not be intentionally added to the steel without the agreement of the purchaser, other than for the purpose of finishing the heat. All reasonable precautions shall be taken to prevent the addition, from scrap of the material used in manufacture, of such elements which affect the hardenability, mechanical properties and application.

INDIA
IS 2507 of 1975

Grade	Designation	C %	Si %	Mn %	Cr %	V %	P ≤ %	S ≤ %
1	45C 8	0.40 - 0.50	0.10 - 0.35	0.60 - 0.90	—	—	0.050	0.050
2	55C 6	0.50 - 0.60	0.10 - 0.35	0.50 - 0.65	—	—	0.050	0.050
3	65C 6	0.50 - 0.70	0.10 - 0.35	0.50 - 0.80	—	—	0.050	0.050
4	70C 6	0.65 - 0.75	0.10 - 0.35	0.50 - 0.80	—	—	0.050	0.050
5	75C 6	0.70 - 0.80	0.10 - 0.35	0.50 - 0.80	—	—	0.050	0.050
6	80C 6	0.75 - 0.85	0.10 - 0.35	0.50 - 0.80	—	—	0.050	0.050
7	85C 6	0.80 - 0.90	0.10 - 0.35	0.50 - 0.80	—	—	0.050	0.050
8	98C 6	0.90 - 1.05	0.10 - 0.35	0.50 - 0.80	—	—	0.050	0.050
9	55Si7	0.50 - 0.60	1.50 - 2.00	0.80 - 1.00	—	—	0.050	0.050
10	50Cr4	0.45 - 0.55	0.10 - 0.35	0.60 - 0.90	0.90 to 1.20	—	0.050	0.050

To Calculate Weight of Strip

Weight of One Meter. in kgs. = $0.00785 \times \text{Width in mm} \times \text{Thickness in mm}$

For e.g.:

Weight of meter length of size 200 X 2.0 mm Thk. is calculated as follows:

$$0.00785 \times 200 \times 2.0 = 3.14 \text{ kg.}$$