

STEEL MATERIAL CROSS REFERENCE LIST

Comparison / Equivalent Chart										
Structural Steel Plates		Chemical Properties					Physical Properties			
		C	Mn	S	P	Si	Y.S (Mpa) (Min)	UTS (Mpa) (Min)	EI (%)	Impact (Min)
India	IS 2062 GR.A	0.23	1.50	0.050	0.050	0.40	for thk<20mm-250, for thk 20-40mm-240, for thk>40mm-230	410	23	N.A
	IS 2062 GR.B	0.22	1.50	0.045	0.045	0.40	for thk<20mm-250, for thk 20-40mm-240, for thk>40mm-230	410	23	27J at 0 ° C
U.S.A	ASTM A36	0.25	0.80-1.20	0.050	0.050	0.40	250	400-550	18	27J at 0 ° C
Europe	EN 10025 S235	0.17	1.40	0.035	0.035	-	235	340-470	23	27J at -20°C
	EN 10025 S275	0.18	1.50	0.035	0.035	-	275	410-560	21	27J at -20°C
Germany	ST 37.2	0.17	1.60	0.040	0.040	0.55	235	360-510	26	27J at 20°C
	ST 44.2	0.20	1.60	0.040	0.040	0.55	275	430-580	22	27J at -20°C
China	Q 235	0.14-.22	0.30-0.65	0.050	0.045	0.03	for thk<16mm-235, for thk 16-40mm-225, for thk>40mm-215	375-500	for thk<16mm-26, for thk 16-40mm-25, for thk>40mm-24	27J at 20°C
Japan	JIS 3101 SS400	0.22	1.30	0.035	0.035	0.35	for thk<16mm-245, for thk 16-40mm-235, for thk>40mm-225	400-510	for thk<5mm-21, for thk 5-16mm-17, for thk>16mm-21	N.A
High Tensile Plates		C	Mn	S	P	Si	Y.S (Mpa) (Min)	UTS (Mpa) (Min)	EI (%)	Impact (Min)
India	SAILMA 350/350 HI	0.20	1.50	0.040	0.040	0.50	355	490-610	21	40J at 0°C
	SAILMA 410/410 HI	0.20	1.50	0.040	0.040	0.50	410	540-660	20	35J at 0°C
Europe	EN 10025 S355J2G3	0.20	1.60	0.035	0.035	0.55	355	490-630	19	27J at -20°C
China	Q 345	0.20	1.00-1.60	0.040	0.040	0.55	for thk<16mm-345, for thk 16-35mm-325, for thk>35mm-295	470-630	22	34J at -20°C
Germany	ST 52.3	0.20	1.60	0.040	0.040	0.55	355	510-680	22	27J at -20°C

ALLOY STEEL										
Internal Standard	Equivalent Grades									
	BS	DIN	IS	EN	SAE/AISI					
EN18	530A40	37Cr4	40Cr1	EN18	5140					
EN24	817M40	34CrNi Mo6	40NiCr4M o3	EN24	4340					
EN19C	709M40	-	40Cr4Mo 3	EN19C	4,14,04, 142					
EN19	709M40	42Cr4 Mo2	40Cr4Mo 3	EN19	4,14,04, 142					
EN18D	530A40	37Cr4	40Cr1	EN18D	5140					
EN18C	530A40	37Cr4	40Cr1	EN18C	5140					
EN353	815M17	-	15NiCr1M o12	EN353	-					
EN18A	530A40	37Cr4	40Cr1	EN18A	5140					
EN354	820M17	-	15NiVCr1 Mo15	EN354	4320					
27C15	-	28Mn6	27C15	-	1527					
20MnCr 5	-	20MnC r5	20MnCr1	-	-					
20Mn2	150M28	-	20Mn2	EN14A	1524					
16MnCr 5	-	16MnC r5	17Mn1Cr 95	-	5120					
15Cr3	523A14	15Cr3	15Cr65	EN206	5015					
FILESTEE L	-	-	-	-	-					
EN18B	530A40	37Cr4	40Cr1	EN18B	5140					
SCM420	708M20	-	-	-	-					
SAE8620	805M20	-	20NiCrMo 2	EN362	SAE8620					

CARBON STEEL										
Internal Standard	Equivalent Grades									
	BS	DIN	IS	EN	SAE/AISI	JIS				
EN15B	150M36	36Mn5	37Mn2, 37C15	EN15B	1536	-				
EN32B	-	CK15	C14	EN32B	10,15,10,161	-				
SAE1038	-	CK38	-	-	1038	-				
EN43C	-	-	C50	EN43C	1050	-				
CK45	-	CK45	45C8	1045	-	-				
EN9	070M55	CK55	C55	EN9	1055	-				
C35	-	C35	35C8, C35Mn75	-	1035	-				
EN42	-	CK75	80C6	EN42	1074	-				
EN42B	-	C67	65C6	EN42B	1065	-				
EN43	080M50	C55	60C6	EN43	1055	-				
EN43B	080A47	CK45	-	EN43B	1045	-				
SAE1541	150M36	36Mn7	37C15	EN15,15 A	SAE1541	SMn43 8				
EN8	080A40	CK45	45C8	EN8	1,04,01, 045	-				
EN8A	080A40	CK45	45C8	EN8A	1,04,01, 045	-				
EN8B	080A40	CK45	45C8	45C8	1,04,01, 045	-				
EN8C	080A40	CK45	45C8	EN8C	1,04,01, 045	-				
EN8D	080A40	CK45	45C8	EN8D	1,04,01, 045	-				

HIGH CARBON STEEL									
Internal Standard	Equivalent Grades								
	EN	SAE/AISI	JIS***						
PC77	-	1075	SWRH77B						
PC80	-	1080	SWRH82B						
PC80CR	-	1080	SWRH82B						
PC270K	-	1080	SWRH82B						
PC270KC rV	-	1080	SWRH82B						
R30	EN5D	1030	SWRH32B						
R35	-	1035	SWRH37B						
R40	EN8	1040	SWRH42B						
R45	EN43B	1045	SWRH47B						
R50	-	1050	SWRH52B						
R55	EN9	1055	SWRH57B						
R60	EN43D	1060	SWRH62B						
R65	EN42B	1065	SWRH67B						
R70	-	1070	SWRH72B						
R75	-	1075	SWRH77B , SUP3						
R80	-	1080	SWRH82B						
R80M	-	1085	SWRH87B						
R95	-	1090	3CD95A						

SPRING STEEL										
Internal Standard	Equivalent Grades									
	BS	DIN	IS	EN	SAE/AISI	JIS				
60Si7	-	60Si7	60Si7	EN45A	-	-				
SUP7	-	59Si7	-	EN45A	9260	SUP7				
SUP12V	685A57	54SiCr6	-	-	9254	SUP12 V				
55Si7	-	55Si7	55Si7	EN45A	-	-				
EN45	250A53	55Si7	55Si2Mn9 0	EN45	9255	-				
65Si7	-	65Si7	-	EN45A	9260	-				
EN45A	250A58	-	-	EN45A	9260	-				
50CrV4	735A51	50CrV4	50Cr4V2	EN47	6150	SUP10				
SAE9254	-	-	-	-	9254	-				
SUP7N	-	-	-	-	9260	SUP7N				
SUP11A	-	-	-	-	51B60	SUP11 A				
SUP9	-	55Cr5	-	-	5155	SUP9				

BEARING QUALITY STEEL										
Internal Standard	Equivalent Grades									
	BS	DIN	IS	EN	SAE/AISI					
SAE5210 0	534A99/53 5A99	100Cr6	103Cr1	EN31	SAE5210 0					
EN31M	534A99/53 5A99	100Cr6	103Cr1	EN31M	52100					
EN31	534A99/53 5A99	100Cr6	103Cr1	EN31	52100					

COLD HEADING QUALITY STEEL - CHQ										
Internal Standard	Equivalent Grades									
	BS	DIN	IS	EN	SAE/AISI	JIS				
SAE1020 CHQ	070M20	CK22	C20	EN 3A	SAE1020	SWRCH 20A				
SAE1022 CHQ	-	-	-	-	SAE1022	-				
SAE4140 CHQ	709M40	42CrMo4	40Cr4Mo3	EN19	SAE4140	SCM440				
SAE1018 CHQ	-	H111	C-15Mn75	EN2C	SAE1018	-				

SAE1541 CHQ	150M36	36Mn7	37C15	EN15,15 A	SAE1541	SMn43 8				
15B41	-	-	-	-	15B41	-				
1045CH Q	-	CK45,C 45	45C8,C45	-	1045	-				
SAE1015 CHQ	-	CK15	-	EN32B	SAE1015	-				
1038CH Q	-	CK38	-	-	1038	-				
SAE1012 CHQ	040A12	CK10	C7, C10	2A/1,2B	SAE1012	SWRCH 12A				
15B25	-	-	26C10BT	-	15B25	-				
SAE1010 CHQ	-	CK10	C10	-	SAE1010	-				
10B21	-	-	21C10BT	-	10B21	-				
SAE1008 CHQ	040A04	C10	C5	2A,2A/1, 2B	SAE1008	SWRCH 8A				

FREE CUTTING STEEL										
Internal Standard	Equivalent Grades									
	BS	DIN	IS	EN	SAE/AISI	JIS				
EN15(A M)	216M36	-	40Mn15S 12	EN15(AM)	1137	-				
EN1A	220Mo7	9SMn2 8	11C10S25	EN1A	1213	SUM22				
EN1APB	220Mo7Pb	9SMnP b36	-	EN1APB	12L14	SUM24 L				
EN8M	212M36	-	40C10S18	EN8M	1146	-				
SAE1146	-	-	40C10S18	EN8M	SAE1146	-				
LOW CARBON STEEL										
Internal Standard	Equivalent Grades									
	BS	DIN	IS	EN	SAE/AISI	JIS				
LCCF	040A04	C10	CS	2A, 2A/1, 2B	SAE1008	SWRCH 8A				
SAE1015	-	CK15	-	-	SAE1015	-				
SAE1012	040A12	CK10	C7, C10	2A/1, 2B	SAE1012	SWRCH 12A				
SAE1010	-	CK10	C10	-	SAE1010	-				
SAE1008	040A04	C10	C5	2A, 2A/1, 2B	SAE1008	SWRCH 8A				
SAE1020	070M20	CK22	C20	EN 3A	SAE1020	SWRCH 20A				
P12	-	-	-	-	-	-				
SAE1018	-	CK15	C15Mn75	EN32B,E N32C	SAE1018	-				

MATERIAL CROSS REFERENCE LIST										
CARBON STEEL										
USA	Japan	Germany		U. K.		France	Italy	Spain	Sweden	China
AISI/SAE	JIS	W.-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	GB
A570.36	STKM 12A	1.0038	RSt.37-2	4360 40 C	-	E 24-2 Ne	-	-	1311	15
	STKM 12C									
1015	-	1.0401	C15	080M15	-	CC12	C15, C16	F.111	1350	15
1020	-	1.0402	C22	050A20	2C	CC20	C20, C21	F.112	1450	20
1213	SUM22	1.0715	9SMn28	230M07	1A	S250	CF9SM n28	F.2111 11SMn 28	1912	Y15
12L13	SUM22L	1.0718	9SMnPb2 8	-	-	S250Pb	CF9SMn Pb28	11SMn Pb28	1914	-
-	-	1.0722	10SPb20	-	-	10PbF2	CF10Pb2 0	10SPb2 0	-	-
1215	-	1.0736	9SMn36	240M07	1B	S300	CF9SMn 36	12SMn 35	-	Y13
12L14	-	1.0737	9SMnPb3 6	-	-	S300Pb	CF9SMn Pb36	12SMn P35	1926	-
1015	S15C	1.1141	Ck15	080M15	32C	XC12	C16	C15K	1370	15
1025	S25C	1.1158	Ck25	-	-	-	-	-	-	25

A572-60	-	1.89	StE380	4360 55 E	-	-	FeE390 KG	-	2145	-
1035	-	1.0501	C35	060A35	-	CC35	C35	F.113	1550	35
1045	-	1.0503	C45	080M46	-	CC45	C45	F.114	1650	45
1140	-	1.0726	35S20	212M36	8M	35MF4	-	F210G	1957	-
1039	-	1.1157	40Mn4	150M36	15	35M5	-	-	-	40Mn
1335	SMn438(H)	1.1167	36Mn5	-	-	40M5	-	36Mn5	2120	35Mn2
1330	SCMn1	1.117	28Mn6	150M28	14A	20M5	C28Mn	-	-	30Mn
1035	S35C	1.1183	Cf35	060A35	-	XC38TS	C36	-	1572	35Mn
1045	S45C	1.1191	Ck45	080M46	-	XC42	C45	C45K	1672	Ck45
1050	S50C	1.1213	Cf53	060A52	-	XC48TS	C53	-	1674	50
1055	-	1.0535	C55	070M55	9	-	C55	-	1655	55
1060	-	1.0601	C60	080A62	43D	CC55	C60	-	-	60
1055	S55C	1.1203	Ck55	070M55	-	XC55	C50	C55K	-	55
1060	S58C	1.1221	Ck60	080A62	43D	XC60	C60	-	1678	60Mn
1095	-	1.1274	Ck101	060A96	-	XC100	-	F.5117	1870	-
W1	SK3	1.1545	C105W1	BW1A	-	Y105	C36KU	F.5118	1880	-
W210	SUP4	1.1545	C105W1	BW2	-	Y120	C120KU	F.515	2900	-

Comparison / Equivalent Chart										
Structural Steel Plates		Chemical Properties					Physical Properties			
		C	Mn	S	P	Si	Y.S (Mpa) (Min)	UTS (Mpa) (Min)	EI (%)	Impact (Min)
India	IS 2062 GR.A	0.23	1.5	0.05	0.05	0.4	for thk<20 mm-250, for thk 20-40mm-240, for thk>40 mm-230	410	23	N.A
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							for thk>40 mm-215		for thk>40 mm-24	
Japan	JIS 3101 SS400	0.22	1.3	0.035	0.035	0.35	for thk<16 mm-245,	400-510	for thk<5mm-21,	N.A
							for thk 16-40mm-235,		for thk 5-16mm-17,	
							for thk>40 mm-225		for thk>16 mm-21	
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							for thk 16-35mm-325,			
							for thk>35 mm-295			
Germany	ST 52.3	0.2	1.6	0.04	0.04	0.55	355	510-680	22	27J at -20° C