

MATERIAL RANGE

SPECIALIST IN SUPPLY OF ODD / SPECIAL GRADES STEEL MATERIALS

CARBON / ALLOY STEEL FORGINGS

RINGS / PINS / SHAFTS / FLANGES / GEAR BLANKS IN
EN-19 ● EN-24 ● EN-29 B ● EN-36 ● EN-40 B ● EN-353 GRADES

BHEL SPECN STEELS

HY 19366 ● HW 19386 ● HW 10781 ● HW 10687 ● HW 10683 ● HW 10681 ● AA 10628 ● AA 10622

CARBON / SPRING STEEL PLATES / SHEETS

EN-8 ● EN-9 ● EN-42 J ● EN-45 ● EN-47 GRADES

NITRIDING STEELS

EN 29B ● EN 40B ● EN41B GRADES

HIGH MANGANESE STEEL PLATES / SHEETS

12% - 14% MANGANESE STEEL GRADE

SPECIALITY METALS / SHEETS

INCONEL ● MONEL ● HASTALLOY ● NICKEL ● INCOLOY ● TITANIUM GRADES

DIE STEEL BLOCKS & BARS / MOULD STEEL

P-20 ● DIN 2713 ● DIN 2714 GRADES

WEAR RESISTANT PLATES

SAIL MA 350 HI ● SAIL MA 410 HI ● St 52.3 ● Fe 540 WHT GRADES

FLANGE STEELS

ASTM A 182-77A F5 ● F11 ● F22 GRADES

STAINLESS STEELS / DUPLEX STEELS

SS 303 ● SS 310 ● SS 440 ● SS 446 ● 17/4 PH ● 17/7 PH GRADES

BOILER QUALITY PLATES

SA 515 / 516 GR 60/70 IS:2002 GR2A / 2B IS:2062 GR A/B GRADES

ALLOY STEEL & CARBON STEEL PIPES

ASTM - AISI - EN SERIES GRADES

GUARANTEED DELIVERY IN 3-4 DAYS

STOCKISTS & SUPPLIERS OF REGULAR GRADES IN TOOL / ALLOY / DIE AND STAINLESS STEELS

HIGH SPEED STEEL ● HOT DIE STEEL ● HCHCR ● OHNS
1% CARBON ● EN-1A ● EN-3B ● EN-8 ● EN-9 ● EN-16
EN-18 ● EN-19 ● EN-24 ● EN-27 ● EN-28 ● EN-29B ● EN-30B
EN-31 ● EN-32B ● EN-36 ● EN-36C ● EN-39B ● EN-40B
EN-41B ● EN-42J ● EN-45 ● EN-47 ● EN-48A ● EN-52
EN-100 ● EN-111 ● EN-202 ● EN-353 ● EN-354 ● SAE-1117
SAE-4130 ● SAE-4140 ● SAE-4161 ● SAE-4320 ● SAE-4340
SAE-52100 ● SAE-6150 ● SAE-8620 ● 16/20Mn Cr5
15 CRNi6 ● 18 CRNi8 ● MILD STEEL ● SS-410 ● SS-416
SS-420 ● SS-431 ● SS-304 ● SS-304L ● SS-316 ● SS-316L
SS-321 ● BRASS ● COPPER ● ALUMINIUM ● TIN
SHEETS ● NICKEL ● BRIGHT BARS ● PHOSPHOR BRONZE
GUN METAL ● ZINC (IMPORTED & INDIAN PRIME QUALITY)

SAME DAY DELIVERY ASSURED

MATERIAL SECTIONS

❖ BILLETS ❖ HEAVY SHAFTS ❖ GEAR BLANKS ❖ WIRE RODS ❖ ROUND BARS ❖
❖ SLABS ❖ PLATES ❖ SHEETS ❖ SQUARES ❖ PROFILE CUT PLATES ❖ ROUND/SQUARE PIPES & TUBES ❖
❖ COILS ❖ STRIPS ❖ RODS ❖

SIZE RANGE

ROUNDS

2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15, 16, 18, 19, 20, 22, 25, 26, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 52, 56, 60, 63, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 190, 200, 210, 220, 225, 230, 240, 245, 250, 255, 260, 270, 280, 290, 300, 310, 330, 340, 350, 360, 370, 380, 390, 400, 425, 440, 450, 465, 475, 490, 500, 510, 525, 540, 560, 600, 635, 680, 700, 750, 800, 840, 880, 900, 925, 950, 980, 1000, 1050, 1200MM DIA

SQUARES

6, 8, 10, 12, 16, 18, 20, 22, 25, 28, 30, 36, 40, 45, 50, 60, 63, 65, 70, 75, 80, 85, 90, 95, 100, 110, 125, 140, 150, 160, 165, 175, 190, 200, 210, 225, 240, 250, 260, 275, 300, 325, 340, 350, 375, 400, 440, 480, 520, 560, 600MM SQ/RCS

FLATS

ALL SIZES AVAILABLE / CAN BE MADE AS PER EXACT REQUIREMENT

HEXAGONS

5, 6, 7, 8, 10, 12, 14, 16, 20, 22, 25, 28, 32, 36, 38, 40, 45, 50, 63, 75, 80, 90, 100, 125, 140, 160MM A/F

PLATES

4, 5, 6, 8, 10, 12, 15, 16, 18, 20, 22, 25, 28, 32, 36, 38, 40, 45, 50, 55, 60, 63, 65, 70, 75, 80, 90, 100, 110, 125, 140, 160, 180, 200, 220, 240, 260, 280, 290, 300, 320, 800 MM Thick.

RINGS

ALL SIZES UPTO 1200MM OD x 300MM ID x 400MM THK AVAILABLE

BLOCKS

ALL SIZES UPTO 30" X 30" X 30" AVAILABLE.

SHEETS

10, 12, 14, 16, 18, 20, 22, 23, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42 Swg thick.

PIPES / TUBES

4mm OD x 1mm ID upto 1000mm OD x 800mm ID

NOTE: INCH DIMENSION SIZES ALSO AVAILABLE

MATERIAL CONDITONS

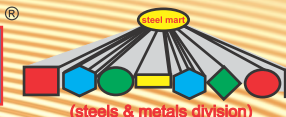
❖ COLD ROLLED ❖ COLD DRAWN ❖ PEELED ❖ CENTRELESS GROUND
❖ HOT ROLLED ❖ FORGED ❖ ANNEALED ❖ QUENCHED & TEMPERED ❖ HARDENED & TEMPERED
NORMALISED

HIGHLIGHTS

- ❑ Specialists in heavy forgings / rolls / blanks / shafts as per specific design
- ❑ Spacious warehouse with all facilities, viz. Hacksaw (12" & 20"), Gas Cutting (plasma), Profile Cutting Machines and Band Saw Cutting Machine for accuracy (without taper cut)
- ❑ Easy access to vast stocks of ALLOY-TOOL-CARBON-SPECIAL-DIE-STAINLESS STEELS in complete range of standards sizes in Round, Square, Flat, Block, Plate, Sheet, Hexagon sections as well as in ODD GRADES / SIZES
- ❑ Constant upgradation of facilities to provide timely service & prompt supply to all clients
- ❑ Rigid quality control at all levels, to ensure top-class, cent-per-cent PRIME grade materials
- ❑ Special facility for immediate booking & supply of small orders



steel mart



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CARBON STEEL / BOILER QUALITY STEEL PLATES

Specification	GRADE	%C Max	%Mn Max	%Si Max	%P Max	%S Max	CE (max)	% Others				UTS Mpa (min)	YS Mpa (min)			Elong. % (min)	Bend test	Charpy V-Notch Impact Energy
SAILMA	300	0.25	1.50	0.45	0.055	0.055					Nb+V+Ti = 0.30 max	440-560	300			20	3T	40J at 0 for 300HI, 30J at -20 for 350HI, 25J at 20 for 410HI, 20J at -20 for 450HI
	300HI	0.20	1.50	0.45	0.040	0.040						440-560	300			21	3T	
	350	0.25	1.50	0.45	0.055	0.055						490-610	350			20	3T	
	350HI	0.20	1.50	0.45	0.040	0.040						490-610	350			21	3T	
	410	0.25	1.50	0.45	0.055	0.055						540-660	410			19	3T	
	410HI	0.20	1.50	0.45	0.040	0.040						540-660	410			20	3T	
	450	0.25	1.50	0.45	0.055	0.055						570-720	450			18	3T	
	450HI	0.20	1.50	0.45	0.040	0.040						570-720	450			19	3T	
DIN17100	ST52.3	0.22	1.60	0.55	0.040	0.040					Al 0.02min	490-630	355			18		27J at -20
IS2002	2	0.20	1.20	0.35	0.035	0.040	0.44				Cu 0.10max, Al 0.022max	410-530	<16-265, >16-40-255, >40-245			22	2T	
ASTMA 516	60	0.24-0.27	*	0.40	0.035	0.035	*T<12.5mm= 0.6-0.9, >12.5mm= 0.85-1.20				415-550	220			25	1.5T	18J at -51 (<26mm)	
	65	0.28-0.31	0.90	0.40	0.035	0.035						450-585	240			23	2T	18J at -51 (<26mm)
	70	0.31-0.33	1.20	0.40	0.035	0.035						485-620	260			21	2T	20J at -46 (<26mm)
ASTMA 537	CL-1	0.24	1.60	0.50	0.035	0.035	0.25				Al - 0.02 min Cu - 0.35 max	485-620	345			22		
SILHARD		0.23	1.60	0.50	0.050	0.050	%Cr-0.64max					Hardness-200BHN (min)						
DSQ		0.05	0.35	0.10	0.030	0.030												
IRSM-41/ SILCOR		0.10	0.45	0.50	0.07-0.14	0.030	Al 0.03max, Cr 0.35-0.60, Ni 0.28-0.47, Cu 0.30-0.60, V0.05max, Mo 0.05max				480	340			22	T		
En10025	S275J0	0.21	1.50		0.040	0.040	0.42		410-560	275			20					
	S275JR	0.21	1.50		0.045	0.050	0.42		410-560	275			22					
	S355J0	0.24	1.60	0.55	0.040	0.040	0.47		490-630	355			20					
	S355JR	0.24	1.60		0.045	0.050	0.47		490-630	355			22					
										<20	20-40	40>						
IS2062	E250 A	0.23	1.50	0.40	0.045	0.045	0.42		410	250	240	230	23	2T<25 & 3T>25				
	E250 B	0.22	1.50	0.40	0.045	0.045	0.41		410	250	240	230	23	2T<25 & 3T>25	27J at RT			
	E250 C	0.20	1.50	0.40	0.040	0.040	0.39		410	250	240	230	23	2T<25 & 3T>25	27J at RT			
	E300	0.20	1.30	0.045	0.045	0.045	0.40		440	300	290	280	22	2T<25 & 3T>25	50J at RT/30J at -20			
	E350	0.20	1.50	0.045	0.045	0.045	0.42		490	350	330	320	22	2T<25 & 3T>25	50J at RT/25J at -20			
	E410	0.20	1.60	0.045	0.045	0.045	0.44	540	410	390	380	20	2T<25 & 3T>25	50J at RT/25J at -20				
	E450 D	0.22	1.60	0.045	0.045	0.045	0.46	570	450	430	420	20	2T<25 & 3T>25	45J at RT/20J at -20				
ASTM A36		0.25	1.20	0.15-0.40	0.040	0.050		400-550		250		18(200GL)						
DIN17200	C-35	0.32-0.35	0.80	0.15-0.35	0.045	0.050												
	C-45	0.42-0.50	0.80	0.15-0.35	0.045	0.050												
	C-55	0.52-0.60	0.90	0.15-0.35	0.045	0.050												

ALLOY STEELS

BS : 970 EN : Specn	Type of Application	Chemical Composition %				
		C	Mn	Ni	Cr	Mo
EN-16	Manganese-Molybdenum Steel suitable for tensile ranges of 45/75 tons according to the ruling section.	0.30/0.40	1.30/1.80	—	—	0.20/0.35
EN-18	1 per cent Chromium Steel Suitable for tensile ranges of 45/65 tons according to the ruling section	0.35/0.45	0.60/0.90	—	0.85/1.15	—
EN-19	1 per cent Chromium-Molybdenum Steel suitable for tensile ranges of 45/80 tons according to the ruling section of the part	0.35/0.45	0.50/0.80	—	0.90/1.50	0.20/0.40
EN-24	1 ½ percent Nickel-Chromium Molybdenum Steel suitable for tensile ranges of 50/100 tons according to the ruling section of the part	0.35/0.45	0.45/0.70	1.30/1.80	2.30/2.80	0.20/0.35
EN-25	2 ½ percent Nickel-Chromium Molybdenum Steel. (Medium Carbon), suitable for tensile ranges of 50/100 tons according to the ruling section of the part	0.27/0.35	0.50/0.70	2.30/2.80	0.50/0.80	0.40/0.70
EN-26	2 ½ percent Nickel-Chromium Molybdenum Steel (High Carbon), suitable for tensile ranges of 60/100 tons according to the ruling section of the part	0.36/0.44	0.50/0.70	2.30/2.80	0.50/0.80	0.40/0.70
EN-27	3 per cent Nickel-Chromium Molybdenum Steel suitable for tensile ranges of 55/80 tons, according to the ruling section of the part	0.25/0.35	0.40/0.70	3.00/3.75	0.50/1.30	0.20/0.65
EN-28	3 ½ percent Nickel-Chromium Molybdenum Steel suitable for tensile ranges of 60/90 tons according to the ruling section of the part	0.25/0.40	0.40/0.70	3.00/4.50	0.75/1.50	0.20/0.65
EN-29 B	3 percent Nickel-Chromium Molybdenum Steel suitable for tensile ranges of 45/100 tons, according to the ruling section of the part	0.15/0.35	0.30/0.65	0.40 max	2.50/3.50	0.30/0.70
EN-30 B	3 per cent Nickel-Chromium Steel Case Hardening Steel	0.26/0.34	0.40/0.60	3.90/4.30	1.10/1.40	0.20/0.40
EN-36	4 ½ percent Nickel-Chromium Molybdenum Steel suitable for tensile for gears, aero engine connecting rounds high duty bolts, spindles etc.	0.12/0.18	0.30/0.60	3.00/3.75	0.60/1.10	—
EN-36 C	4 percent Nickel-Chromium Molybdenum Case Hardening Steel	0.12/0.18	0.30/0.60	3.00/3.75	0.60/1.10	0.10/0.25
EN-39 B	4 1/4 Percent Nickel-Chromium case hardening steel suitable for High Duty Transmission & Reduction gears	0.12/0.18	0.50 max	3.80/4.50	1.00/1.40	0.15/0.35
EN-40 B	3 per cent Chromium-Molybdenum Nitriding Steel	0.20/0.30	0.40/0.650	0.40 max	2.90/3.50	0.40/0.70
EN-41 B *	1 ½ per cent Chromium-Aluminium Molybdenum Nitriding Steel	0.35/0.45	0.30/0.65	0.40 max	1.40/1.80	0.10/0.25
EN 52**	Silicon Chromium Valve Steel	0.40/0.50	0.30/0.60	—	7.50/9.50	—
EN-100	Low Alloy Steel	0.35/0.45	1.20/1.50	0.50/1.00	0.30/0.60	0.15/0.25
EN-111	Low Nickel Chromium Steel	0.30/0.40	0.60/0.90	1.00/1.50	0.45/0.75	—
EN-202	Carbon-Manganese Case-Hardening Steel (Semi - free cutting)	0.08/0.18	1.20/1.50	—	—	—
EN-353	1 1/4 per cent Nickel-Chromium Case-Hardening Steel	0.10/0.20	0.50/1.00	1.00/1.50	0.75/1.25	0.08/0.15
EN-354	1 ½ per cent Nickel-Chromium Molybdenum Case-Hardening Steel	0.10/0.20	0.50/1.00	1.50/2.00	0.75/1.25	0.10/0.20

* AL = 0.90 / 1.30 ** Si = 1.40 / 1.70

ALUMINUM ALLOYS : CHEMICAL COMPOSITION LIMITS

Alloy (ISS)	Equivalent alloy (A.A.)	Copper		Magnesium		Silicon		Iron	Manganese		*Others (total)	Remarks
		Min.	Max	Min.	Max	Min.	Max		Min.	Max		
Old New	U.S.A.							Max			Max	
1 C 19000	1100	—	0.1	—	—	—	0.50	0.6	—	0.1	0.1	Aluminium 99.0%Min.
1 B 19500	1050	—	0.05	—	—	—	0.30	0.4	—	0.05	0.1	Aluminium 99.5%Min.
1 E 19501	1050 EC	—	0.04	—	—	—	0.15	0.35	—	—	0.1	Aluminium 99.5%Min.
— 19600	1060	—	0.05	—	—	—	0.25	0.35	—	0.03	0.1	Aluminium 99.6%Min.
— 19700	1070	—	0.03	—	—	—	0.20	0.25	—	0.03	0.1	Aluminium 99.7%Min.
— —	2011	5.0	6.0	—	0.1	—	0.4	0.7	—	0.1	0.4	Also lead & bismuth 0.2-0.6% Each
H15 24345	2014	3.8	5.0	0.2	0.8	0.5	1.2	0.7	0.3	1.2	0.5	—
H14 24534	2017	3.5	4.7	0.4	1.2	0.2	0.7	0.7	0.4	1.2	0.5	—
N 3 31000	3003	—	0.1	—	0.1	—	0.6	0.7	0.8	1.5	0.4	—
N 21 43000	4043	—	0.1	—	0.2	4.5	6.0	0.6	—	0.5	0.2	—
N 2 46000	4047	—	0.1	—	0.2	10.0	13.0	0.6	—	0.5	0.2	—
N 4 52000	5052	—	0.1	1.7	2.6	—	0.6	0.5	—	0.5	0.4	Chromium + Mn + 0.5
N 5 53000	5086	—	0.1	2.8	4.0	—	0.6	0.5	—	0.5	0.4	Cr + Mn = 0.5
N 6 55000	5056	—	0.1	4.5	5.5	—	0.6	0.7	—	0.5	0.4	Chromium up to 0.25
N 8 54300	5083	—	0.1	4.0	4.9	—	0.4	0.7	0.5	1.0	0.4	Chromium up to 0.25
H 20 65032	6061	0.15	0.4	0.7	1.2	0.4	0.8	0.7	0.2	0.8	0.4	Chromium (0.15-0.35) Either Mn or Cr shall be present.
H 9 63400	6063	—	0.1	0.4	0.9	0.3	0.7	0.6	—	0.3	—	Chromium up to 0.10
— —	6066	0.7	1.2	0.8	1.4	0.9	1.8	0.7	0.6	1.1	0.4	—
— 64423	—	0.5	1.0	0.5	1.3	0.7	1.3	0.8	—	1.0	—	—
91 E 63401	6101	—	0.05	0.4	0.9	0.3	0.7	0.5	—	0.03	0.1	—
— 64401	6201	—	0.1	0.6	0.9	0.5	0.9	0.5	—	0.03	0.1	—
H 30 64430	6351	—	0.1	0.4	1.2	0.6	1.3	0.6	0.4	1.0	0.3	Chromium up to 0.25
— 74530	7039	—	0.2	1.0	1.5	—	0.4	0.7	0.2	0.7	0.4	Zinc (4.5%)
— —	7075	1.20	2.0	2.1	2.9	—	0.5	0.7	—	0.3	0.2	Zinc (5.1-6.1) & Chromium (0.2-0.8)







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SILVER JUBILEE YEAR - It pays to deal with an Experienced Business House



BRASS / COPPER

Material	DIN 1787 DIN 17660	ISO R 1337 ISO 426	BS 2870	ASTM B 36	NFA 53-100 NFA 51-103	Composition %		
						Cu	Zn	P
Electrolytic Copper*	E-Cu 58	E-Cu ETP	C 101	C 110 00	Cu/a 1			
*Oxygen content of E-Cu 58 = 0.005% to 0.04%						> 99.9	-----	-----
Phosphorus deoxidised copper	SF-Cu	Cu DHP	C 106	C 122 00	Cu/b	> 99.9	-----	0.015 0.040
Cu-Zn alloys (Brasses)	CuZn 10	CuZn 10	CZ 101	C 220 00	U-Z10	89-91	Rest	
	CuZn 15	CuZn 15	CZ 102	C 230 00	U-Z15	84-86	Rest	
	CuZn 28	CuZn 28	-----	-----	U-Z28	71-73	Rest	
	CuZn 30	CuZn 30	CZ 106	C 260 00	U-Z30	69-71	Rest	
	CuZn 37	CuZn 37	CZ 108	C 272 00	U-Z36	63.5-65	Rest	



CHROMIUM BEARING STEELS

BS : 970 EN : Specn	SAE/AISI Specn	C	Mn	Si	Cr
EN-31	-----	0.95/1.10	0.25/0.45	0.15/0.35	0.90/1.20
EN-31	52100	0.95/1.10	0.25/0.45	0.15/0.35	1.40/1.60
EN-18D	5140	0.38/0.44	0.60/0.90	0.10/0.35	0.90/1.20
EN-48	5147	0.45/0.55	0.60/0.90	0.10/0.35	0.90/1.20

FREE CUTTING STEELS

BS : 970 EN : Specn	SAE/AISI Specn	C	Mn	Si	S&P
EN-1 A	1213	0.08/0.15	0.80/1.20	0.10	0.25/0.05
EN-7	1115	0.20/0.30	1.00/1.50	0.25	0.15/0.05
EN-8 M	1140	0.35/0.45	0.80/1.20	0.25	0.20/0.05
EN-15 AM	1137	0.35/0.45	1.30/1.70	0.25	0.10/0.05

SPRING STEELS

BS : 970 EN : Specn	SAE/AISI Specn	C	Mn	Si	Cr
EN-9	1055	0.50/0.60	0.60/0.90	0.10/0.35	-----
EN-42J	1085	0.75/0.90	0.60/0.90	0.20/0.35	-----
EN-44	9255	0.90/1.20	0.40/0.70	0.10/0.35	-----
EN-45	9225	0.55/0.65	0.70/1.00	1.50/2.00	-----
EN-47*	6150	0.45/0.55	0.50/0.80	0.30/0.50	0.80/1.20
EN-48	5147	0.45/0.55	0.60/0.90	0.10/0.35	0.90/1.20

*V:0.15%

CARBON STEELS

BS : 970 EN : Specn	SAE/AISI Specn	C	Mn	Si
EN-3 B	1020	0.15/0.25	0.00/1.00	0.10/0.35
EN-32 B	1015	0.10/0.20	0.60/0.90	0.15/0.35
EN-4	1026	0.20/0.30	0.60/0.90	0.15/0.35
EN-5	1030	0.25/0.35	0.60/0.90	0.15/0.35
EN-8	1040	0.35/0.45	0.60/0.90	0.15/0.35
EN-9	1055	0.50/0.60	0.60/0.90	0.15/0.35
EN-42 B	1065	0.60/0.70	0.60/0.90	0.15/0.35

BORON STEELS

These Steels Can Be Expected To Contain 0.0005 To 0.003 Per Cent Boron

GRADES		C	Mn	S	P	Si	Mo	Cr	V
15B21H	H15211	0.17-0.24	0.70-1.20	0.040	0.050	0.15-0.35	—	—	—
15B35H	H15351	0.31-0.39	0.70-1.20	0.040	0.050	0.15-0.35	—	—	—
15B37H	H15371	0.30-0.39	1.00-1.50	0.040	0.050	0.15-0.35	—	—	—
15B41H	H15411	0.35-0.45	1.25-1.75	0.040	0.050	0.15-0.35	—	—	—
15B48H	H15481	0.43-0.53	1.00-1.50	0.040	0.050	0.15-0.35	—	—	—
15B62H	H15621	0.54-0.67	1.00-1.50	0.040	0.050	0.40-0.60	—	—	—
50B44	G50441	0.43-0.48	0.75-1.00	0.035	0.040	0.15-0.30	—	0.40-0.60	—
50B46	G50461	0.44-0.49	0.75-1.00	0.035	0.040	0.15-0.30	—	0.20-0.35	—
50B50	G50501	0.48-0.53	0.75-1.00	0.035	0.040	0.15-0.30	—	0.40-0.60	—
50B60	G51601	0.56-0.64	0.75-1.00	0.035	0.040	0.15-0.30	—	0.40-0.60	—
51B60	G51601	0.56-0.64	0.75-1.00	0.035	0.040	0.15-0.30	—	0.70-0.90	—
81B45	G81451	0.43-0.48	0.75-1.00	0.035	0.040	0.15-0.30	0.20-0.40	0.35-0.55	0.08-0.15
94B17	G94171	0.15-0.20	0.75-1.00	0.035	0.040	0.15-0.30	0.30-0.60	0.30-0.50	0.08-0.15
94B30	G94301	0.28-0.33	0.75-1.00	0.035	0.040	0.15-0.30	0.30-0.60	0.30-0.50	0.08-0.15

Section Weight in Kgs Per Meter (ROUNDS-SQUARES-HEXAGONS)

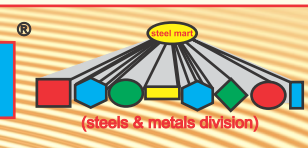
Size		Rounds	Squares	Hexagons	Size		Rounds	Squares	Hexagons
inch	mm	Kg/m	Kg/m	Kg/m	inch	mm	Kg/m	Kg/m	Kg/m
3/16	4.76	0.14	0.18	0.1541	1.7/8	47.63	13.97	17.79	15.42
1/4	6.35	0.25	0.32	0.2739	2	50.80	15.90	20.24	17.53
5/16	7.94	0.39	0.49	0.4279	2.1/8	53.98	17.95	22.85	19.79
3/8	9.53	0.56	0.71	0.6162	2.1/4	57.15	20.12	25.61	22.18
7/16	11.11	0.76	0.97	0.8387	2.3/8	60.33	22.42	28.54	24.72
1/2	12.70	0.99	1.26	1.095	2.1/2	63.50	24.84	31.63	27.40
9/16	14.29	1.25	1.58	1.386	2.5/8	66.68	27.38	34.87	30.20
5/8	15.88	1.55	1.98	1.712	2.3/4	69.85	30.05	38.26	33.14
3/4	19.05	2.23	2.85	2.470	2.7/8	73.03	32.85	41.82	36.22
7/8	22.23	3.04	3.87	3.350	3	76.20	35.77	45.54	39.44
1	25.40	3.97	5.06	4.380	3.1/4	82.55	41.98	53.44	-----
					3.1/2	88.90	48.68	61.98	-----
1.1/8	28.58	5.03	6.40	5.550	4	101.6	63.59	80.96	-----
1.1/4	31.75	6.21	7.91	6.850	4.1/2	114.3	80.47	102.46	-----
1.3/8	34.93	7.51	9.97	8.280	5	127.0	99.35	126.50	-----
1.1/2	38.10	8.94	11.38	9.860	6	152.4	143.1	182.20	-----
1.5/8	41.28	10.50	13.36	11.57	8	203.2	254.3	323.80	-----
1.3/4	44.45	12.17	15.50	13.42	10	254.0	397.4	505.90	-----

Section Weight for Sheets

Gauge (SWG)	MM.	Sheet 4x8 (1250mm x 2500mm)	Sheet 1Ft. x 4Ft. (312.5mm x 1250mm)	Sheet 1Ft. x 1Mtr. (312.5mm x 1000mm)
10	3.00	75.000 Kg.	9.375 Kg.	7.500 Kg.
12	2.50	62.500 Kg.	7.825 Kg.	6.250 Kg.
14	2.00	50.000 Kg.	6.250 Kg.	5.000 Kg.
16	1.60	40.000 Kg.	5.000 Kg.	4.000 Kg.
18	1.25	31.250 Kg.	3.925 Kg.	3.125 Kg.
19	1.00	25.000 Kg.	3.125 Kg.	2.500 Kg.
20	0.90	22.500 Kg.	2.825 Kg.	2.250 Kg.
21	0.80	20.000 Kg.	2.500 Kg.	2.000 Kg.
22	0.70	17.500 Kg.	2.200 Kg.	1.750 Kg.
23	0.63	15.750 Kg.	1.975 Kg.	1.575 Kg.
24	0.55	13.750 Kg.	1.725 Kg.	1.375 Kg.
26	0.50	12.500 Kg.	1.575 Kg.	1.250 Kg.
28	0.40	10.000 Kg.	1.250 Kg.	1.000 Kg.
30	0.30	07.500 Kg.	0.950 Kg.	0.750 Kg.







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SILVER JUBILEE YEAR - It pays to deal with an Experienced Business House

TOOL & DIE STEELS															
STEEL TYPE	BOHLER VEW	CHEMICAL ANALYSIS %								HEAT TREATMENT				CORR SPECN	TYPICAL APPLICATIONS
		C%	SI%	Mn%	Cr%	Mo%	W%	V%	Co%	Hardening Temperature	Quenching Medium	Tempering Temperature	Brinell Rockwell Hardness	AISI	
HIGH SPEED STEEL	S 600	0.80 to 0.90	<0.40	<0.40	3.80 to 4.50	4.50 to 5.50	5.50 to 6.70	1.60 to 2.20		1190-1230	OIL / AIR	540-570	64-66	M-2	Thread Cutting Tool, Twist Drills, Reamers, Broaching Tools, Metal Saws Various Milling Tools, Wood Working Tools, Cold Work Tools.
	S 705	0.80 to 0.90	<0.40	<0.40	3.80 to 4.50	4.80 to 6.20	5.50 to 6.70	1.70 to 2.30	4.50 to 5.50	1190-1230	OIL / AIR	550-580	64-66	M-35	Various Turning & Planing Tools, Milling Cutters, Taps, Twist Drills, Wood Working Tools, Cold Work Tools
	S 500	1.00 to 1.15	<0.50	<0.40	3.80 to 4.50	9.00 to 10.00	1.20 to 1.90	0.90 to 1.40	7.50 to 8.50	1170-1210	OIL / AIR	530-560	67-69	M-42	Milling Cutters, Twist Drills, Thread Cutting Tools, Broaching Tools, Cold Work Tools
	S 700	1.15 to 1.30	<0.40	<0.40	3.80 to 4.50	3.00 to 4.00	9.00 to 11.00	3.00 to 3.70	9.00 to 11.00	1200-1240	OIL / AIR	540-570	65-67	T-42	Turning & Milling Tools For Roughing & Finishing Work, Wood Working Tools, Heavy Duty Cold Work Tools, Tool Bits
	S 200	0.70 to 0.85	<0.40	<0.40	3.80 to 4.50	----	17.00 to 19.00	0.80 to 1.20	----	1250-1290	OIL / AIR	550-580	64-66	T-1	Turning Planing & Slotting Tools, Taps, Twist Drills, Threading Dies, Profile Cutting Tools, Broaching Tools, Reamers.
	S 305	0.70 to 0.85	<0.40	<0.40	3.80 to 4.50	----	17.00 to 19.00	0.80 to 1.20	4.50 to 5.50	1240-1280	OIL / AIR	550-580	64-66	T-4	Turning Planing & Milling Tools In Particular For Roughing Work.
	S 300	0.70 to 0.85	<0.40	<0.40	3.80 to 4.50	----	17.00 to 19.00	0.80 to 1.20	9.00 to 11.00	1250-1290	OIL / AIR	560-590	64-66	T-5	Turning Planing & Milling Tools In Particular For Roughing Work.
	S 590 ISO MATRIX	1.00 to 1.50	<0.50	<0.30	3.50 to 4.50	4.50 to 5.50	6.00 to 7.00	2.90 to 3.20	7.50 to 9.50	1075-1180	OIL SALT BATH	550-580	64-66	ASP 30	Snaper cutters hobs milling cutters broaching tools taps twist drills.
	S 790 ISO MATRIX	1.00 to 1.50	<0.40	<0.40	3.50 to 4.50	5.00 to 6.00	6.00 to 7.00	2.80 to 3.50	----	1050-1180	OIL SALT BATH	540-570	64-66	ASP 23	Powder HSS, Excellent wear resistance & toughness.
HOT DIE STEEL	W 300	0.32 to 0.42	0.80 to 1.20	<0.50	4.50 to 5.50	1.00 to 1.50	----	0.30 to 0.50	----	1000-1040	OIL / AIR	550-650	52-56 (Oil) 50-54 (Air)	H-11	High Duty Hot Work Tools Such As Manderls, Dies & Containers FoMetal Tube & Rod Extrusion, Hot, Impact Extrusion Tools, Tools For The Manufacture of Hollow Bodies, Tools For The Manufacture of Screws Nuts, Rivets & Bolts, Pressure Die Casting Dies, Forming Dies, Die Inserts, Hot Shear Blades
	W 302	0.32 to 0.42	0.80 to 1.20	<0.50	4.50 to 5.50	1.00 to 1.50	----	0.80 to 1.20	----	1020-1080	OIL / AIR	550-650	52-56 (Oil) 50-54 (Air)	H-13	
	W 100	0.25 to 0.35	<0.40	<0.60	2.00 to 3.00	----	9.00 to 10.00	0.30 to 0.50	----	1070-1150	OIL / AIR	600-650	48-52 (Oil) 44-48 (Air)	H-21	
COLD WORK TOOL STEEL	K 100	1.90 to 2.20	0.10 to 0.40	0.15 to 0.45	11.00 to 12.00	----	----	----	----	930-980	OIL / AIR	150-200	63-65	D-3	High Efficiency Cutting Tools (dies & Punches), Blanking Tools, Wood Working Tools, Shear Blades For Cutting Thin Materials, Thread Rolling Dies, Drawing, Deep Drawing & Extrusion Tools, Pressing Tools For The Ceramics & The Pharmaceutical Industry, Cold Rolls For Multiple Roller Stands, Gauges, Plastic Modes .
	K 105	1.55 to 1.75	0.25 to 0.40	0.20 to 0.40	11.00 to 12.00	0.50 to 0.70	0.40 to 0.60	0.10 to 0.50	----	650-700	OIL / AIR	----	63-65	D-2	
	K 110	1.50 to 1.80	0.10 to 0.40	0.15 to 0.45	11.00 to 12.00	0.60 to 0.80	----	0.90 to 1.10	----	650-700	OIL / AIR	----	63-65	D-2	
	K 460	0.90 to 1.05	0.15 to 0.35	1.00 to 1.20	11.00 to 12.00	----	0.50 to 0.70	0.05 to 0.15	----	780-820	OIL	150-200	63-65	0-1	Cutting Tools (dies & Punches), Blanking Tools, Thread Cutting Tools, Wood Working Tools, Machine Knives For The Cellulose, Paper & Pulp & Metal Working Industrial Gauges, Plastic Moulds.
	K 720	0.85 to 0.95	0.10 to 0.40	1.90 to 2.10	0.20 to 0.50	----	0.05 to 0.15	0.05 to 0.15	----	790-820	OIL	----	63-65	0-2	
	K 700	1.00 to 1.30	----	12.00 to 14.00	----	----	----	----	----	1000-1050	WATER	----	63-65	SCMNH1	Various components for hard cushioning, bulk material handling & ORE dressing & processing equipment such as crusher jaws, impact bars, plates, hammers, breaker plates grizzly bars, anvils, liners, elevator bucket, dredgee bucket, dredger & scraper teeth, bucket links, track rollers & chain roller.
	K 455	0.55 to 0.65	0.50 to 0.70	0.15 to 0.45	0.90 to 1.20	----	1.80 to 2.10	0.10 to 0.20	----	870-900	OIL	----	----	S-1	Cutting Tools (dies & Punches) For Heavy Plate, Cold Punches, Cold Shear Blades, Wood Working Tools, Bits For Pneumatic Tools, Highly Stregged Embossing Tools, Hot Work Tools For Low Thermal Stresal.
	K 305	0.90 to 1.05	0.20 to 1.40	0.40 to 0.70	4.80 to 5.50	0.90 to 1.20	----	0.10 to 0.36	----	950-980	OIL / AIR	----	58-62	A-2	Cutting tools (dies & Punches), blanking tools, thread rolling dies, shear blades.
PLASTIC MOULD STEEL	M 201						----	----	----	840-870	OIL	----	51	P-20	Plastic Moulds, Mould Frames For Plastic Moulds & Pressure Casting Dies Recipient Sleeves.
	M 200	0.35 to 0.45	0.30 to 0.50	1.40 to 1.60	1.80 to 2.00	0.15 to 0.25	----	----	----	840-860 860-880	OIL AIR	600-650	----	P-20 +S	
	M 238	0.35 to 0.45	0.20 to 0.40	1.30 to 1.60	1.80 to 2.10	0.15 to 0.25	NI 1.0	----	----	840-870	OIL	----	51	P-20 +NI	Ltis micro-alloyed, Vacuum-degassed steel with excellent Features, good machinability, outstanding Polish ability, good texturing properties Large plastic moulds with deep engraving & high core stresses.
	M 310	0.35 to 0.45	0.30 to 0.50	0.20 to 0.40	12.50 to 13.50	----	----	----	----	1000-1050	OIL	100-200	53-56	STAVEX	Moulds for chemically aggresing Plastics & Plastics containing abrasive Filters.
	M 300	0.33 to 0.43	1.00 Max	1.00 Max	15.00 to 17.00	1.00 to 1.30	NI 1.00 Max	----	----	1000-1050	OIL / AIR	600-700	46-49 (OIL) 42-48 (AIR)	RAMEX S	Moulds for processing plastics with corrosive action.
	K 600	0.40 to 0.50	0.10 to 0.40	0.15 to 0.45	1.20 to 1.50	0.15 to 0.35	NI 3.8/4.3	----	----	840-870	OIL / AIR	----	53-57 (OIL) 54-58 (AIR)	420	Cutlery dies, cutting tools for thick material, billet shear blades, drawing jaws, solid embossing & bending tools, plastic mould, casting.

STAINLESS STEEL										
ALLOY	UNS	TYPICAL CHEMICAL ANALYSIS						DIN	ASTM	AMS
		C Max	Ni	Cr	Other (MAX)					
AUSTENITIC GRADES										
301	S30100	0.15	6.0-8.00	16.0-18.0	Mn 2.0; P .045; S .03; Si 1.0			1.4310	Chem(A-167) A-580	----
302	S30200	0.15	8.0-10.0	17.0-19.0	Mn 2.0; P .045; S .03; Si 1.0			1.6900		----
302HQ	S30430	0.10	8.0-10.0	17.0-19.0	Mn 2.0; P .035; S .035; Si 1.0; Mo .50; Cu 3.0-4.0			1.4567	A-581 A-580 A-580 A-580 A-580 A-580 A-580 Chem(A-167) A-580 Chem(B-511)	5640 5639, 5697 5647 5686 5650 5651 5652 5648, 5690 5653 5645, 5689 5716 5646 ----
302-Cu ^{TMS}	S30430	0.10	8.0-10.0	17.0-19.0	Mn 2.0; P .035; S .035; Si 1.0; Mo .50; Cu 3.0-4.0			1.4567		
303	S30300	0.15	8.0-10.0	17.0-19.0	Mn 2.0; P 0.2; S 0.15; Si 1.0; Mo .60			1.4305		
304	S30400	0.08	8.0-10.5	18.0-20.0	Mn 2.0; P .045; S .03; Si 1.0			1.4301		
304L	S30403	0.03	8.0-12.0	18.0-20.0	Mn 2.0; P .045; S .03; Si 1.0			1.4306		
305	S30500	0.12	10.5-13.0	17.0-19.0	Mn 2.0; P .045; S .03; Si 1.0			1.4303		
309S	S30908	0.08	12.0-15.0	22.0-24.0	Mn 2.0; P .045; S .03; Si 1.0			1.4833		
310S	S31008	0.08	19.0-22.0	24.0-26.0	Mn 2.0; P .045; S .03; Si 1.5			1.4841		
314	S31400	0.25	19.0-22.0	23.0-26.0	Mn 2.0; P .045; S .03; Si 1.5-3.0			1.4841		
316	S31600	0.08	10.0-14.0	16.0-18.0	Mn 2.0; P .045; S .03; Si 1.0; Mo 2.0-3.0			1.4401		
316L	S31603	0.03	10.0-14.0	16.0-18.0	Mn 2.0; P .045; S .03; Si 1.0; Mo 2.0-3.0			1.4404		
317L	S31703	0.03	11.0-15.0	18.0-20.0	Mn 2.0; P .045; S .03; Si 1.0; Mo 3.0-4.0			1.4438		
321	S32100	0.08	9.0-12.0	17.0-19.0	Mn 2.0; P .045; S .03; Si 1.0; Ti 5 X C min.			1.4541		
330	N08330	0.08	34.0-37.0	17.0-20.0	Mn 2.0; P .04; S .03; Si 0.75-1.50; Mo 1.0-2.0			1.4864		
347	S34700	0.08	9.0-13.0	17.0-19.0	Mn 2.0; P .045; S .03; Si 1.0; Cb + Ta 10 X C min.			1.4550		
CARPENTER 20 Cb-3 ¹⁰	N08020	0.06	32.5-35.0	19.0-21.0	Mo 2.0-3.0; Cu 3.0-4.0, 8 X C ≤ Cb + Ta ≤ 1.0, FeBal.			2.4660		
FERRITIC GRADES										
430	S43000	0.12		16.0-18.0	Mn 1.0; P .04; S 1.0; Si 1.0			1.4016	A-580	5627
446	S44600	0.20		23.0-27.0	Mn 1.5; P .04; S .03; Si 1.0; N .25			1.4762	A-580	----
MARTENSITIC GRADES										
410	S41000	0.15		11.5-13.5	Mn 1.0; P .04; S .03; Si 1.0			1.4006	A-580	5613
416	S41623	0.15		12.0-14.0	Mn 1.25; P .06; S .15 min.; Si 1.0; Mo .60			1.4005	A-581	5610
420	S42000	.15min.		12.0-14.0	Mn 1.0; P .04; S .03; Si 1.0			1.4021	A-580	5621
PRECIPITATION HARDENING GRADES										
17-7PH ^{TMS}	S17700	0.09	6.50-7.75	16.0-18.0	Al .75-1.5; Si 1.0; P .04; S .03			1.4568	Chem(A-693) —	Chem (5528, 5529) 5731
A285 ^{TMS}	S66286	0.08	24.0-27.0	13.5-16.0	Mn 2.0; Si 1.0; P .040; S .030; Mo 1.0-1.5; Al .035 B .001-.010, Ti 1.90-2.35, V .10-.50			1.4980		
NICKEL ALLOYS										
ALLOY	UNS	TYPICAL CHEMICAL ANALYSIS						DIN	ASTM	AMS
		Ni+	C	Mn	Fe	Si	Other			
AUSTENITIC GRADES										
Nickel 200	N02200	99.5 min.	0.8 max.	0.18	0.20	0.18	Cu .13 max.	2.4066	B-160	----
Nickel 201	N02201	99.5 min.	.01 max.	0.18	0.20	0.18	Cu .13 max.	2.4068	B-160	----
Nickel 233	N02233	99.5	0.09	0.18	0.05	0.005	Mg .07, Cu .03, Ti .003, S .005	2.4061		
MONEL 400	N04400	66.5	0.15	1.0	1.25	0.50	Cu 31.5, S 0.12	2.4360	B-164	4730, 4731
INCONEL 600	N06600	76.0	0.08	0.5	8.0	0.25	Cu .25, Cr 15.5	2.4816	B-166	5665, 5687
INCONEL 601	N06601	60.5	0.05	0.50	14.1	0.25	Cu .50, Cr 23	2.4851		5715
INCONEL 625 ¹	N06625	61.0	0.08	0.25	2.5	0.25	Cr 21.5 max., Al .2, Ti .2, Mo 9.0 max., (Cb+Ta) 3.65	2.4856	B-446	5837
INCONEL 702 ¹	N07702	79.0	0.04	0.50	1.0	0.35	S .005, Cu .25, Cr 15.5, Ti .60, Al 3.25			
INCONEL 718 ¹	N07718	52.5	0.04	0.18	bal.	0.18	Cu .15, Al .50, Ti .90, Cr19.0, S.008, Mo 3.05, (Cb+Ta)5.13	2.4668		5832
INCONEL 722 ¹	N07722	75.0	0.04	0.50	7.0	0.35	S.005, Cu .25, Al .70, Cr.15.5, Ti 2.38			5714
INCONEL X-750 ¹	N07750	73.0	0.04	0.50	7.0	0.25	S.005, Cu.25, Al .70, Cr 15.5, Ti 2.50, (Cb+Ta).95	2.4669		5667, 5670, 5698, 5699
INCONEL 800 ¹	N08800	32.5	0.05	0.75	46.0	0.50	Cr.21.0, Ti .38, Al .38, Cu .38	1.4876	B-408	5766
INCONEL 825 ¹	N08825	42.0	0.03	0.50	29.0	0.25	S.015, Ti.90, Al .10, Cu 2.25, Cr21.5, Mo 3.0	2.4858	B-425	
HASTELLOY B-2 ²	N10665	bal.	.02 max.	≥ 1.00	≥ 2.0	1.0 max.	Co ≥ 1.0, Cr ≥ 1.0, Mo 26.0-30.0	2.4615, 2.4617		
HASTELLOY C-276 ²	N10276	bal.	0.05 - 0.15	1.00 max.	4.0-7.0	0.08	Co 2.50 max., Cr14.5-16.5, W .2-1.0, Mo15-17	2.4819	B-574	
HASTELLOY X ²	N06002	bal.	0.05 - 0.15	1.0 max	17.0-20.0	1.0 max.	Co .5-2.5, Cr 20.5-23.0, W .2-1.0, Mo 8.0-10.0	2.4665	B-572	
COBALT ALLOYS										
HAYNES 25 (L-605)	R30605	9.0-11.0	0.05-0.15	1.25 max	3.0 max.	0.40 max	Co balance, Cr 19.0-21.0, W14.0-16.8	2.4967		
WASPALLOY ^{TMS}	N07001	bal.	.02-1.0	1.00 max.	2.0 max.	0.15 max.	Co 13.5, Al 1.3, Cr19.5, Cu.10, Mo 4.25, Ti 3.0	2.4964 2.4654		5759 5706
COMMERCIALLY PURE TITANIUM										
ALLOY		UNS		C	Fe	N	O	H	ASTM	AMS
Ti 35A	Grade 1	R507		0.08	0.20	0.03	0.18	0.0100	F67GR1	4921
Ti 40A	Grade 2	R507		0.10	0.30	0.03	0.25	0.0100	F67GR2	4921
Ti 75A	Grade 4	R507		0.10	0.50	0.05	0.40	0.0100	F67GR4	4921