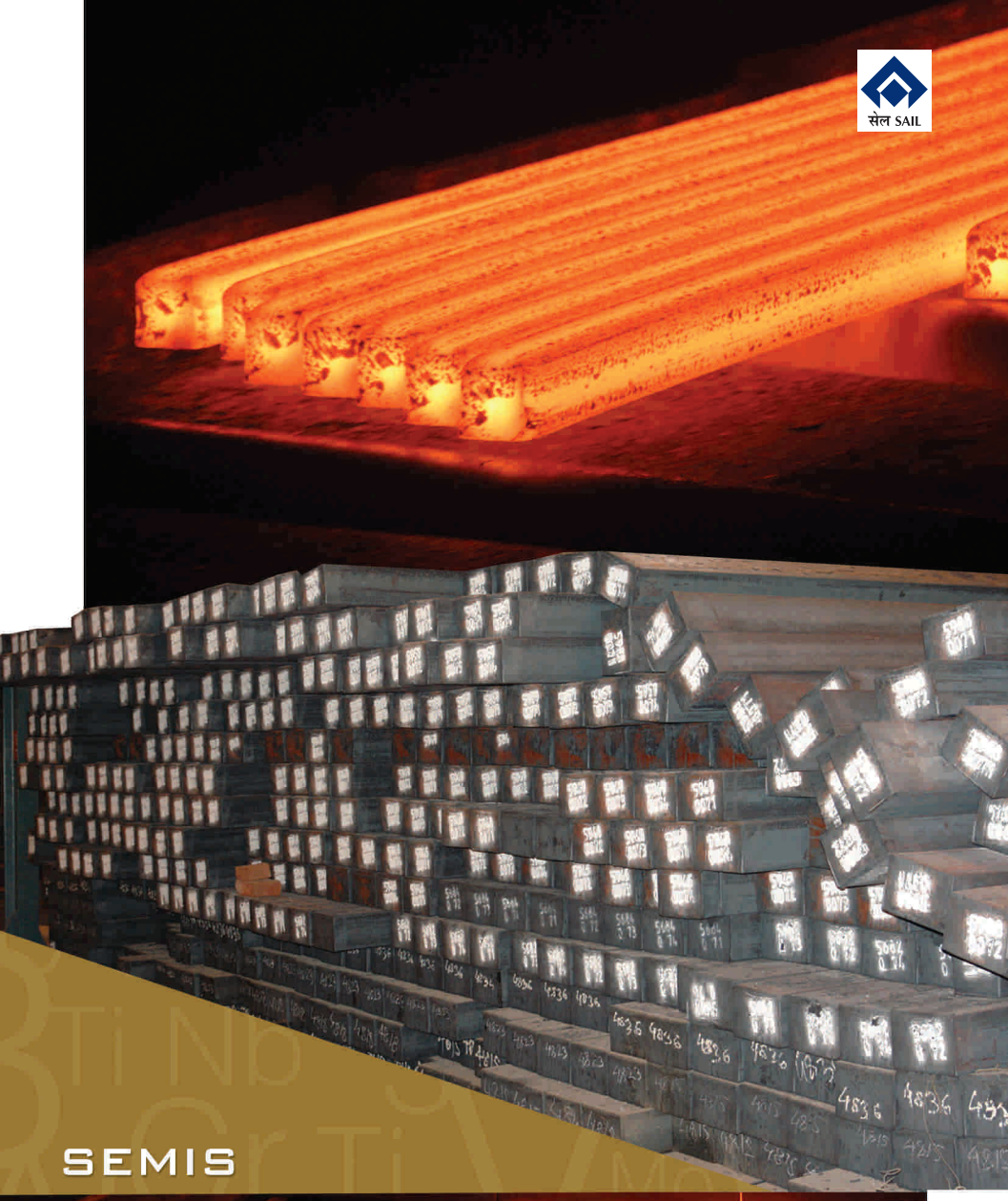

SEMIS

Semis

Rationalised sizes of Blooms, Billets and Slabs

Item	Size mm	Sectional Weight kg/m	Mill
Blooms	Bhilai Steel Plant		
	150 x 150	176.63	BBM
	260 x 330	673.53	BBLM
	280 x 285	626.43	BBLM
	295 x 320	741.04	BBLM
	300 x 325	765.38	BBLM
	300 x 335	788.93	BCCS
	310 x 340	827.39	BBLM
	320 x 320	803.84	BBLM
	Durgapur Steel Plant		
	200 x 200	314.00	DBLM
	210 x 160	263.76	DBLM
	230 x 160	288.88	DBLM
	250 x 160	314.00	DBLM
	250 x 210	398.00	DBLM
	250 x 300	588.75	DBLM
	250 x 320	628.00	DBLM
	270 x 150	317.93	DBLM
	300 x 140	329.70	DBLM
	300 x 250	588.75	DBLM
	350 x 140	384.65	DBLM
	365 x 140	401.14	DBLM
	210 x 160	263.76	DBCP
	230 x 160	288.88	DBCP
	300 x 150	353.25	DBCP
	350 x 150	412.13	DBCP
	350 x 240	659.40	DBRCP
	340	713.00	DBRCP
	IISCO Steel Plant		
	150 x 150	176.63	ICCP
	280 x 200	439.60	ICCP
Billets	Bhilai Steel Plant		
	90 x 90	63.59	BBM
	100 x 100	78.50	BBM
	105 x 105	86.50	BBM
	Durgapur Steel Plant		
	100 x 100	78.50	DCCP
	125 x 125	122.66	DCCP

Item	Size mm	Sectional Weight kg/m	Mill
Slabs	Bhilai Steel Plant		
	200 x 250	392.50	BBLM
	200 x 310	486.70	BBLM
	200 x 410	643.70	BBLM
	205 x 325	523.01	BBLM
	205 x 405	651.75	BBLM
	200 x 1250	1962.50	BCCS
	200 x 1300	2041.00	BCCS
	200 x 1500	2355.00	BCCS
	250 x 1500	2943.75	BCCS
	320 x 1500	3768.00	BCCS

Abbreviation used :

BCCS	:	Bhilai Continuous Casting Shop	DBCP	:	Durgapur Bloom Caster Plant
BBLM	:	Bhilai Blooming Mill	DBRCP	:	Durgapur Bloom Round Caster Plant
BBM	:	Bhilai Billet Mill	DCCP	:	Durgapur Continuous Casting Plant
DBLM	:	Durgapur Blooming Mill	ICCP	:	IISCO Continuous Casting Plant

Common grades : IS 2830, IS 2831, SAE 1070, EN 8, EN 9, SAIL Tower, SAILMA, 20 Mn Cr 5, IS 1875, SWR-14, SAIL HCR

Chemical Composition

Specification	Grade	C%	Mn%	P% max	S% max
IS 2830/2012	C15 MMn	0.12-0.18	0.60-1.00		
	C18 MMn	0.15-0.21	0.60-1.00		
	C20 MMn	0.17-0.23	0.60-1.00	A 0.050	0.050
	C15 HMn	0.12-0.18	1.00-1.80	B 0.045	0.045
	C18 HMn	0.15-0.21	1.00-1.80	C 0.040	0.040
	C20 HMn	0.17-0.23	1.00-1.80		
	C25 HMn	0.3 max	1.8 max	0.060	0.060
IS 2831/2012	C8	0.15 max	0.30-0.60	0.055	0.055
	C15	0.12-0.18	0.30-0.60	0.055	0.055
	C22	0.25 max	1.25 max	0.075	0.060
SAE 1070		0.65-0.75	0.60-0.90	0.040	0.045
EN 8		0.35-0.45	0.60-1.00	0.06	0.06
EN 9		0.50-0.60	0.50-0.80	0.06	0.06
SAIL Tower	Grade 1	0.12-0.17	0.8-1.2	0.045	0.045
	Grade 2	0.15-0.20	1.0-1.5	0.045	0.045
	Grade 3	0.18-0.22	1.0-1.5	0.045	0.045
	Grade 4	0.16-0.20	1.2-1.5	0.045	0.045
	Grade 5	0.18-0.22	1.2-1.5	0.045	0.045
	Grade 6 (DSP)	0.16-0.20	1.2-1.4	0.045	0.045
SAILMA	350 HI	0.20 max	1.50 max	0.04	0.04 *
20Mn Cr5		0.17-0.22	1.1-1.4	0.035	
			Cr 1.00-1.30		
Spring Steel	55 Si 7	0.50-0.60 (Si:1.5-2.0)	0.80-1.00	0.04	0.04
	60Si7	0.55-0.65 (Si:1.5-2.0)	0.80-1.00	0.040	0.040
	SUP 9	0.52-0.60	0.65-0.95	0.035	0.035
		Si: 0.15-0.35, Cr: 0.65-0.95, Cu+Ni: 0.3 max			
	SUP 11A	0.56-0.64	0.7-1.0	0.035	0.035
		Si 0.15-0.35, Cr 0.7-1.0, B 0.0005 min, Cu+Ni: 0.3 max			
High Carbon	SAE 1040	0.37-0.44	0.6-0.9	0.035	0.035

* will be supplied only on the basis of chemical analysis in case of Semis

Specification	Grade	C% Max	Mn% Max	P% Max	S% Max
IS 1875/1992	Class 1	0.1-0.18	0.6-0.7	0.04	0.04
	Class 1A	0.1-0.2	0.6-0.9	0.04	0.04
	Class 2	0.15-0.25	0.6-0.9	0.04	0.04
	Class 2A	0.2-0.3	0.6-0.9	0.04	0.04
	Class 3	0.25-0.35	0.6-0.9	0.04	0.04
	Class 3A	0.3-0.4	0.6-0.9	0.04	0.04
	Class 4	0.4-0.5	0.6-0.9	0.04	0.04
	Class 5	0.5-0.6	0.6-0.9	0.04	0.04
	Class 6	0.6-0.7	0.5-0.8	0.04	0.04
SWR-14		0.14	0.60	0.05	0.05
SWR-10		0.10	0.60	0.04	0.04
SAIL HCR		0.20		0.045	0.045
SAIL BORON		0.20-0.30	1.20-1.5	0.04	0.04
		B : 0.003-0.005, Cr : 0.50 max			
ASTM A105		0.2-0.24	0.85-1.5	0.035	0.035
HCRS (Cu-P)		0.15 max	0.25-0.80	0.07-0.15	0.03
		Cu : 0.20 min			
50 C8		0.45-0.55	0.6-0.9	0.04	0.04

Notes :

IS 2830/2012: (1) Min Si content not less than 0.1% in Silicon killed steel. (2) Total micro alloying elements like Nb, V and Ti not to exceed 0.2%. (3) Copper content shall be between 0.20 and 0.35%, if agreed. (4) All types of steel in above specification may be supplied in three grades A, B, & C, having Sulphur, Phosphorous (ladle analysis) and Carbon equivalent as follows: Grade A - Sulphur and Phosphorus each 0.05 max, CE 0.42 max; Grade B - Sulphur and Phosphorus each 0.045 max, CE 0.41 max; Grade C - Sulphur and Phosphorus each 0.04 max, CE 0.39 max.

IS 2831/2012: (1) Semi finished steel products - such as Blooms, Billets, Slabs which are fit for further processing. The dimension and tolerances for this product shall be as per mutual agreement. (2) Micro alloying may be allowed subject to mutual agreement between the purchaser and the manufacturer. Micro alloying elements like Nb, V or Ti when used individually or in combination, the total content shall not exceed 0.20 per cent. (3) While placing order the steel should be designated by 'designation'. (4) Copper may be present between 0.20 to 0.35 per cent as mutually agreed to between the purchaser and the manufacturer. The copper bearing quality steel shall be designed with a suffix Cu, for example, C15 Cu. (5) For grade C22, other requirements shall be as per relevant finished products standard. (6) In order to get desired properties, the chemical composition may be mutually agreed to between the manufacturer and the purchaser conforming to stipulation IS 2831.

SAE 1070	:	Si 0.05 – 0.30%
EN 8, EN 9	:	Si 0.05 – 0.35%
SAIL Tower	:	(for grades 4, 5 & 6) : Nb/V 0.03% min. CE - Gr-1 0.35-0.40, Gr-2 & 3 0.40-0.45, Gr-4 0.35-0.40, Gr-5 0.40-0.45, Gr-6 0.40-0.49
SAILMA	:	Nb+V+Ti 0.25 max
20 Mn Cr 5	:	Cr 1.0- 1.3%
IS 1875	:	Si 0.15-0.35%
SAIL HCR	:	Content of corrosion resistant elements will be 0.75% min, S+P = 0.090% max
High Carbon	:	Si = 0.15-0.30%

* SAIL Boron, SAIL spring & high carbon Billet produced from DSP with EMS

	Product	Width across Flat (mm)	Thickness (mm)	Tolerances (mm)
IS:2830	Billets	Up to 75 Over 75	– –	± 1.5 ± 3
	Blooms	Up to 150 Over 150	– –	+ 4.0, - 3.0 + 6.0, - 3.0
	Slabs	Up to 300 Over 300	Over 150 Up to 150 Up to 150	+ 3.0, - 4.0 + 3.0, - 6.0 + 5.0, - 10.00

Applications

Specification	Application
IS 2830	Re-rolling into structurals, rounds and rebars
IS 2831	Commercial grade for re-rolling into structurals and rounds.
SAE 1070	Manufacture of tractor discs
EN 8, EN 9/IS 1875	Forging purposes
SAIL Tower	Re-rolling into structurals for TLT segment
SAILMA 350	Re-rolling into high tensile structurals
20 Mn Cr 5	Case hardening steel for automobile gear
SWR-EQ (IS:2879)	Welding electrodes, welding m/c wires
SWR-14	Re-rolling into wire rods
SWR-10	Re-rolling into wire mesh
SAIL HCR	Re-rolling into high corrosion resistant rebars
SAIL HCR-EQR	Re-rolling into high corrosion and earthquake resistant rebars
SAIL Boron	Tractor disc
Spring Steel/Sup 11A/Sup-9	Helical/Leaf Springs, Rail Clips
Chain Steel	Chain links
High Carbon	Wire rope, cycle spoke, Tyre bead etc.
ASTM A 105	Pipe Flanges