

**Specification
Of
Steel Slab**

For Hot Rolled Steel coil

Material And process:

Steel furnished to this specification shall be from electric furnace.

During steel manufacturing, the base steel shall undergo the following treatment:

- Deoxidation treatment.
- Thorough desulphurization.

All slabs shall be produced by continuous casting.

Slab Surface Conditions – Imperfections and Defects

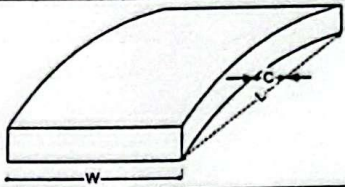
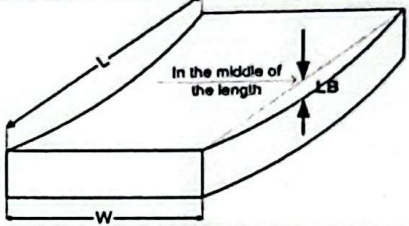
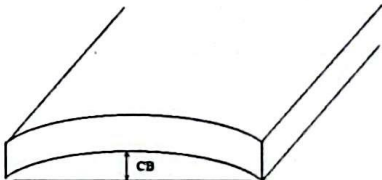
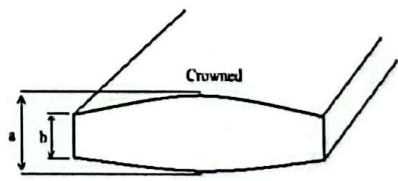
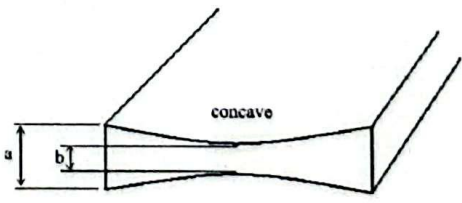
1. All surfaces of the slab shall be inspected for defects and scarfing carried out if necessary.
2. Slabs shall be correctly marked and stored to avoid any confusion between heats of steel.
3. Depressions on slab surface shall not be more than 2 mm deep and 40 mm wide (measured in casting direction).
4. In order to avoiding the formation of slivers, Surface scratches shall not be more than 2 mm deep and more than 2 mm wide.
5. Generally, slabs shall be free from:
 - Edge cracks, which can cause grazed edges on Coil
 - Broad face/narrow face transverse crack
 - Corner transverse crack
 - Longitudinal cracks
 - Star cracks
 - Liquid metal sweating through surface cracks
 - Metallic slivers, partially linked to the slab surface
 - Surface open holes
 - Pinholes, due to gas generation
 - Sub-surface blowholes, which can cause entrapment of oxides, silicates, sulfides powder, gas and refractories
 - Visible cold shuts
 - Cyclic marks, due to foreign body on the rolls of the withdrawing unit
 - Oscillation marks whose shape does not permit to remove powder, slag or scale with the descaling units
 - Deburred slab

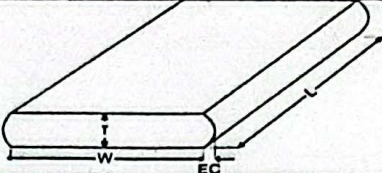
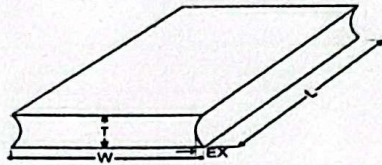
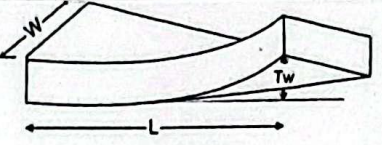
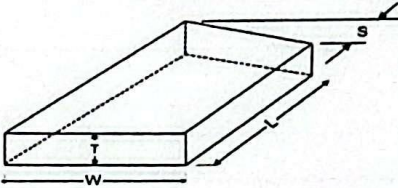
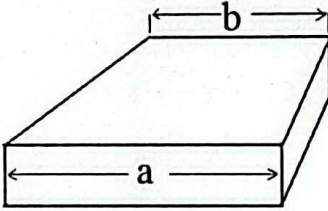
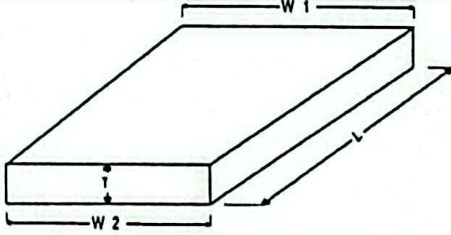
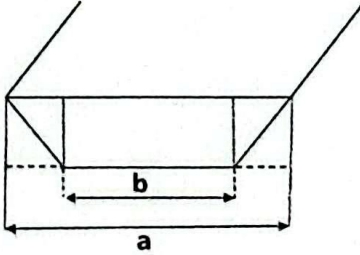
Chemical Composition: (Weight Percent)

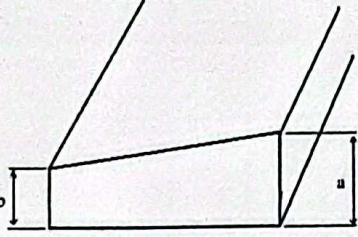
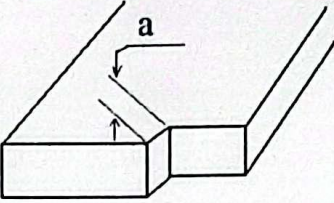
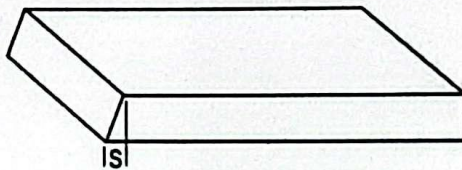
Grade	1012		2013		3014		3016		5446	
element	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
C	0.025	0.065	0.06	0.09	0.12	0.15	0.14	0.17	0.13	0.17
Si	0	0.03	0	0.03	0	0.03	0	0.03	0	0.03
Mn	0.19	0.27	0.45	0.55	0.4	0.65	0.75	0.9	0.85	1.15
P	0	0.02	0	0.025	0	0.025	0	0.025	0	0.025
S	0	0.024	0	0.024	0	0.023	0	0.026	0	0.015
Cr	0	0.07	0	0.07	0	0.07	0	0.07	0	0.07
Mo	0	0.04	0	0.04	0	0.04	0	0.04	0	0.04
Ni	0	0.07	0	0.07	0	0.07	0	0.07	0	0.07
V	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01
Cu	0	0.07	0	0.07	0	0.07	0	0.07	0	0.07
Al	0.023	0.045	0.02	0.042	0.02	0.042	0.02	0.042	0.02	0.0
Ti	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01
B (ppm)	0	5	0	5	0	5	0	5	0	5
Nb	0	0.005	0	0.005	0	0.005	0	0.005	0.03	0.05
N (ppm)	0	80	0	80	0	80	0	80	0	80
Ca (ppm)	0	20	0	20	0	20	0	20	0	20
CEQ	0.057	0.11	0.134	0.181	0.19	0.258	0.265	0.32	0.272	0.361

$$CEQ = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

Dimension, Shape and weight Tolerance:

Thickness	-5/+2 mm	
Width	-10/+20 mm	
Length	-/+ 100 mm	
slab weight	Max 27 ton	
Camber	4mm/m ≤ 40 mm	
Wrapped Slab Or Long Bow	LB ≤ 80mm (LB ≤ 8 mm/m)	
Cross Bow	CB ≤ 5mm (CB ≤ 3.5 mm/m)	
Crowned (Convexity)	a-b ≤ 6 mm max 4 mm/m	
Concavity	a-b ≤ 6 mm max 4 mm/m	

Edge Concavity	$EC \leq 5 \text{ mm}$	
Edge Convexity	$EX \leq 5 \text{ mm}$	
Twist	10 mm max for 9 to 10m of length	 <p>Tw: Twist / torsion</p>
Squareness	S: max 1% of width	
Trapezoidal slab	$a - b \leq 30 \text{ mm}$	
Tapper	$W1 - W2 \leq 20 \text{ mm}$	
Trapezoid	Max 10 mm for each side ($a - b \leq 20 \text{ mm}$)	

<p>Wedge</p>	<p>$a - b \leq 6 \text{ mm}$</p>	
<p>Misaligned Cut Slab</p>	<p>$a \leq 20 \text{ mm}$ for sale $a \leq 30 \text{ mm}$ for rolling</p>	
<p>Cut-off angle Along</p>	<p>$S \leq 10 \text{ mm}$</p>	
<p>Scarf</p>	<p>$a \leq 16 \text{ mm}$ $a + b \leq 20 \text{ mm}$ $c/a \geq 6 \text{ mm}$</p>	