



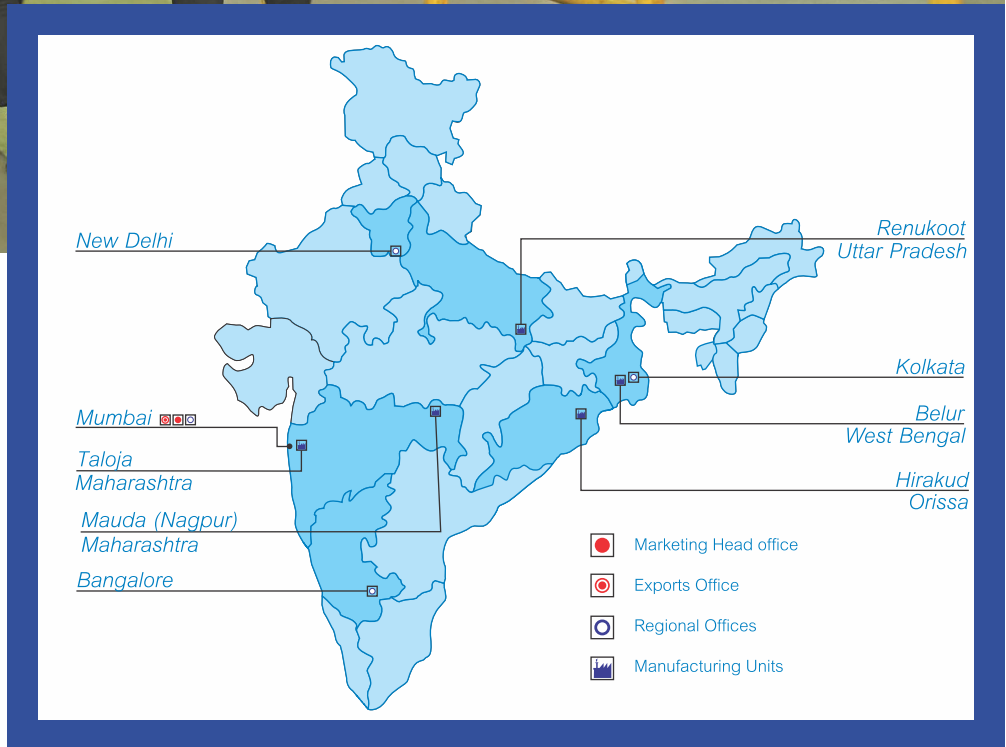
**GREENER  
STRONGER  
SMARTER**

ALUMINIUM  
FLAT ROLLED PRODUCTS



# Hindalco Flat Rolled Products

Operations in India





## Our Vision

To be a premium metals major, global in size and reach, excelling in everything we do, and creating value for its stakeholders.

## Our Mission

To relentlessly pursue the creation of superior shareholder value by exceeding customer expectations profitably, unleashing employee potential and being a responsible corporate citizen adhering to our values.

## Values

Integrity, Commitment, Passion, Seamlessness, Speed.

## THE ADITYA BIRLA GROUP

A US \$ 44 billion Indian multinational corporation, Aditya Birla Group is in the league of Fortune 500 with a multicultural team of 1,20,000 people representing 42 nationalities. The Group's operations are spread across 35 countries. Over 50 per cent of the Aditya Birla Group's revenues flow from its overseas operations.

### A Global Major

- No. 1 in Aluminium Rolling
- No.1 in viscose staple fibre
- No.1 in carbon black
- The fourth largest producer of insulators
- Among the top 4 cement producers (outside China)



### An Indian Leader

- A top fashion (premium branded apparel) and lifestyle player
- The second largest player in viscose filament yarn
- The largest producer in the chlor-alkali sector
- The largest telecom service provider
- A leading player in life insurance and asset management
- The largest manufacturer of grey cement, white cement and concrete

## HINDALCO

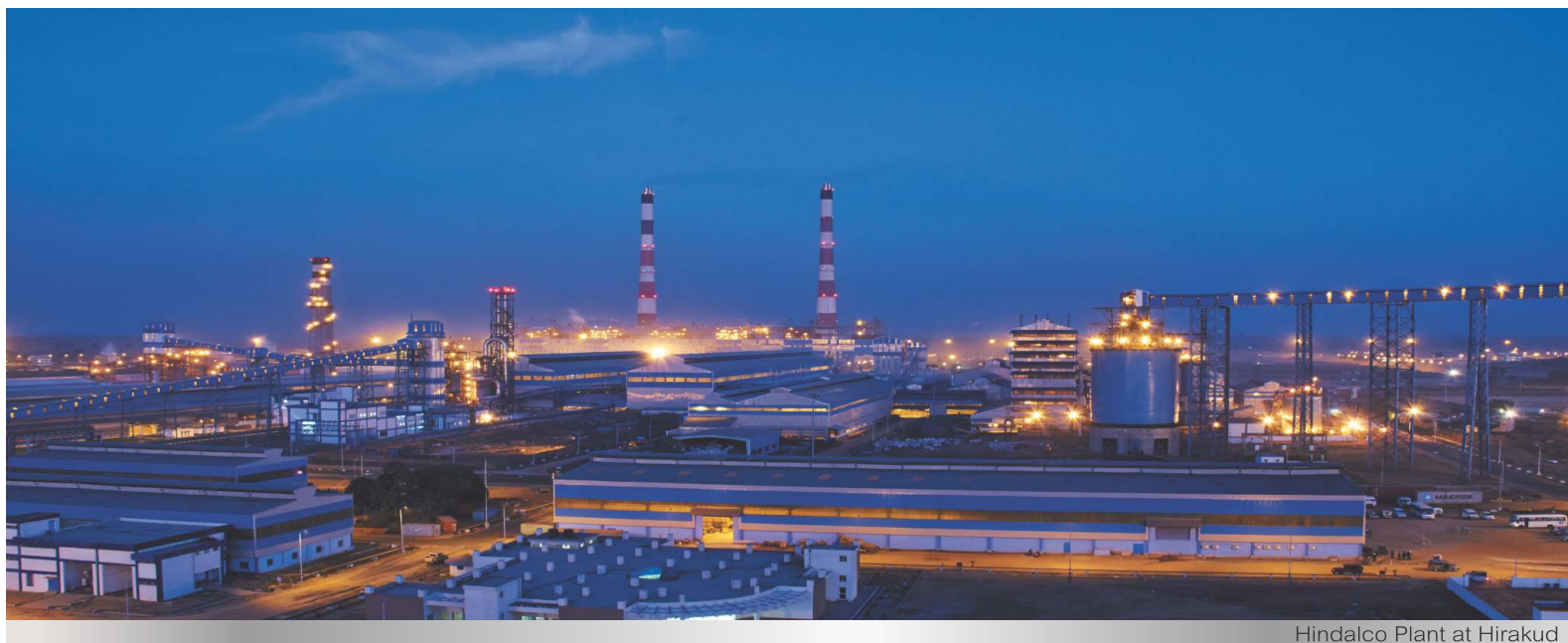
Hindalco Industries Limited, the metals flagship company of the Aditya Birla Group, is an industry leader in aluminium and copper.

A metals powerhouse with a consolidated turnover of over US \$ 18 billion, Hindalco is the world's largest aluminium rolling company and one of the biggest producers of primary aluminium in Asia. Its Copper smelter is the world's largest custom smelter at a single location.

In India, the company's aluminium units across the country encompass the gamut of operations from bauxite mining, alumina refining, coal mining, captive power plants and aluminium smelting to downstream rolling, extrusions and foils. Today, Hindalco ranks among the global aluminium majors as an integrated producer with a footprint in 10 countries outside India.

Product application and Market development, Key Account Management and Excellence in customer service are some of the focus areas for Flat Rolled Products (FRP) Business. For FRP business, manufacturing facilities are being upgraded in line with the changing market needs.

In India, the FRP capacities are being added from current 300KTPA to 675KTPA by FY27 to cater to fast growing demand from emerging applications.



Hindalco Plant at Hirakud



## Value Added Products Offered by Hindalco

For various industries, a wide range of Flat Rolled products are manufactured and supplied by Hindalco. Some of the important applications are:



### Packaging

Closure Stock for pilfer-proof bottle caps.  
Foilstock for foil and packaging industry.  
Can-end Stock for beverage cans.



### Printing

Lithographic Sheets and Coils for offset printing plates.

### Electrical

Lamp Cap Stock for GLS lamps and Tube lights.  
High Conductivity Plates / Sheets for Electrical Busbars, Ducting, Flexibles, etc.



### Consumer Durables

Circles for pressure cookers, non-stick cookware & hard anodized cookware. Roll Bond Sheets and Coils for refrigeration industry. Finstock for air conditioners.



### Building And Construction

Colour Coated Coils for Aluminium Composite Panels, false ceiling, paneling, etc.  
High Strength and Corrosion Resistant Roofing Sheets in various profiles and colours.  
Sheets for shuttering system.  
Tiled Roofing Sheets.



### Automobile

Auto Radiator Finstock.  
Heat Shield Coils.  
Al-Clad Sheet and HSRP Finstock for automobile heat exchangers (radiators / intercoolers / condensers / evaporators).

### Road Transport

Sheets / Coils for bus / van body paneling.  
Chequered / Pattern Sheets for flooring and paneling.



### Marine

Sheets / Plates for boats, ships etc.

### Defence And Industrial

Strong Alloy Sheets and Plates for various defence and industrial applications.



## Hindalco Rolling Plants - Facilities

Hindalco Flat Rolled Products business is equipped with the state-of-the-art Rolling Mills in five locations in India:

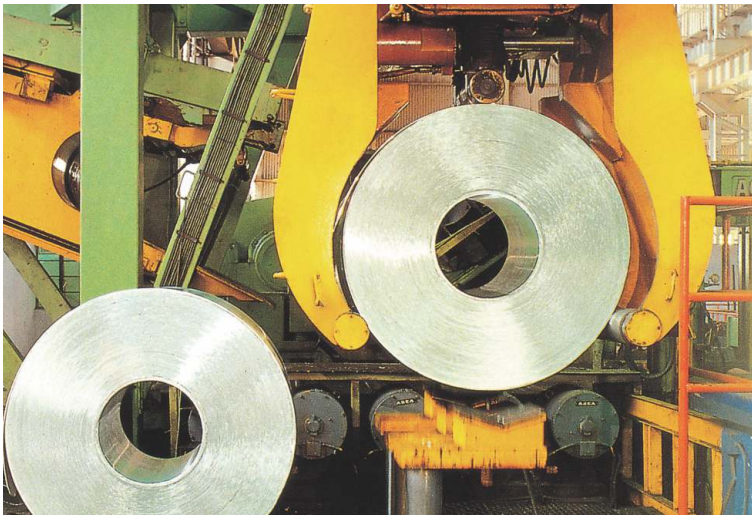
- Belur (Kolkata, West Bengal),
- Mouda (Nagpur, Maharashtra),
- Renukoot (Near Varanasi, Uttar Pradesh),
- Taloja (Near Mumbai).
- Hirakud (Orissa)

### Rolling Mills

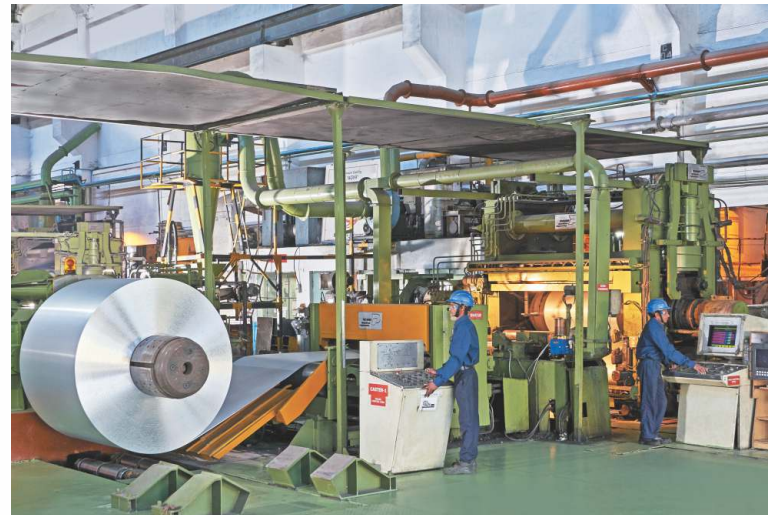
- a) Four Hot Rolling Mills, with 1+3 hot tandem mill at Hirakud.
- b) Eight Cold Rolling Mills out of which one mill can produce up to 40 microns thick aluminium strips.

### Continuous Casters

Four Continuous Casters - upto 1700 mm width coils can be produced.



Hot Mill



Continuous Caster



Hot Rolling Process

### Feedstock

The latest Wagstaff Air Slip™ slab casting technology that ensures consistent quality & surface finish of stock feed which in turn ensures excellent quality finished product.



Slab Casting



Cold Mill



### Processing / Finishing Lines

- Coil Slitters
- Tension Levelers
- Sheeting Lines
- Circle Punching Presses
- Circle Shearing Machines
- Roll Forming Lines
- Stucco Embossing Lines
- Stretchers
- Heat Treatment Furnaces



Testing

### Testing

Hindalco has the most comprehensive testing facilities in the Flat Rolled Products industry in India. The facilities include :

- Spectrometer (optical emission, X-ray fluorescence, X-ray diffraction) for chemical composition
- Metallographic Image Analyzer for grain structure & texture
- Universal Testing Machine for tensile strength & elongation measurement.
- Rockwell & Brinell Hardness Testing Machine
- Digital Micro Ohm Meter for electrical conductivity
- Ultrasonic Testing Machine
- Ericsson Cupping Machine
- Gas Chromatograph



Hindalco Innovation Center



Quality System



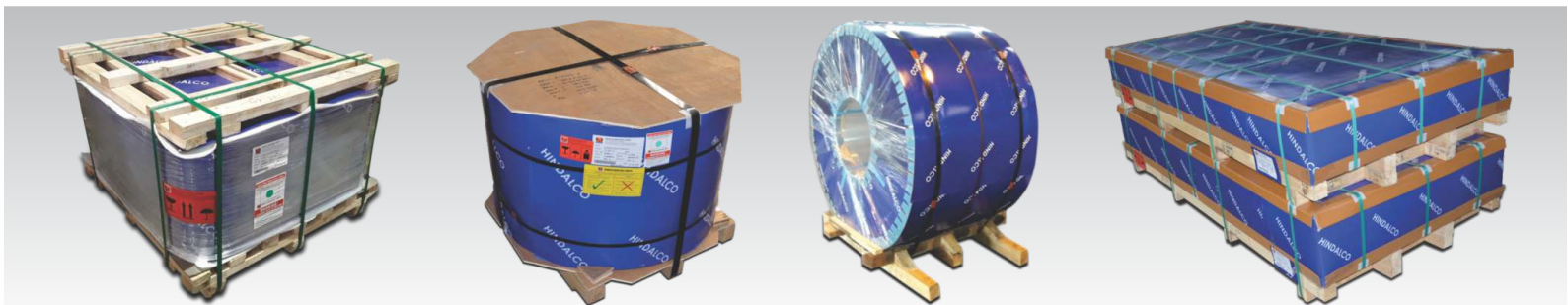
Knowledge Repository

### Quality System Certifications

All the Flat Rolled Product plants are ISO : 9001-2000 certified for Quality Systems. In addition, they also have other certifications like ISO 14001 and OHSAS18001, ROHS, MSDS and Conflict Mineral certification.

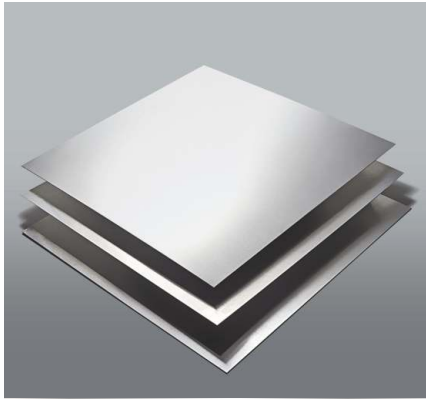
### Packing

Fully Automatic Packing and Handling Systems at Hindalco serve the varied requirements of customers and also cater to the different modes of transport; by road, rail or sea.



Fully Automatic Packing and Handling Systems





Hot Rolled Plates



Hot Rolled Coils



Hot Rolled Coils

## Hindalco Rolled Products

### A) Hot Rolled Plates for General Engineering Applications

Alloys - AA	Temper	Thickness Range (mm)	Length Range (mm)	Width Range (mm)
1050, 1060, 1070, 1080, 1100, 1200, 3003, 3105 & 8011	F & O	6 - 200	1000 - 7000	500 - 1550
5052, 5251, 5083, 5086, 6061, 6351 & 6082	F & O T6 (For 6061, 6351 & 6082 alloy)	6 - 80 (For T6 temper maximum 16.0 mm)	1000 - 7000 (For T6 temper maximum 3658mm)	500 - 1220
7039	F, O & T6	6 - 25	1500 - 4500 (For T6 temper maximum 3658mm)	500 - 915

### Hot Rolled Plates for Electrical Applications

Alloys - AA	Temper	Thickness, Width And Length Ranges (mm)	Electrical Conductivity
1050, 1060, 1070, 1080, & 1350	"F"	SAME AS ABOVE	60% of IACS (Minimum)

#### Stretched Plates

Thickness Limit : 6 - 12 mm for Hard Alloys  
6 - 14 mm for soft Alloys  
Length Limit : 2000 - 4000 mm

### B) Hot Rolled Coils for General Engineering Applications

Alloys - AA	Temper	Thickness Range (mm)	Width Range (mm)
1100, 8011 1200 & 3105	"F"	5 - 9	914 - 1550 mm
		5 - 6.5	914 - 1920 mm

#### Tempers

F - As Rolled  
O - Soft  
T4 - Solutionised  
T6 - Solution Heat Treated and Aged



Cold Rolled Coils



Stucco Embossed Coils



Cold Rolled Coils



### C) Cold Rolled Coils for General Engineering Applications

Alloys - AA	Temper	Thickness Range (mm)	Width Range (mm)	Coil ID (mm)
1050, 1060, 1070, 1080, 1100, 1200, 1235, 3003, 3004, 3005, 3105 & 8011	O, H12, H14, H16, H18, H2X & H3X	0.18 - 4.00	35 - 1800	200, 250, 300, 400 & 508
5005, 5050, 5052, 5754, 5251, 6061, 6351,	H1XX, H3XX, F, O, H12, H14, H16, H18 & H3X (F, O-in 6061 & 6351 alloy)	0.25 - 4.00	1200 - 1600	
5083, 5086 & 2219	(F, H18, O in 2219)	1 - 4	1200 - 1500	

### D) Stucco Embossed Sheets / Coils

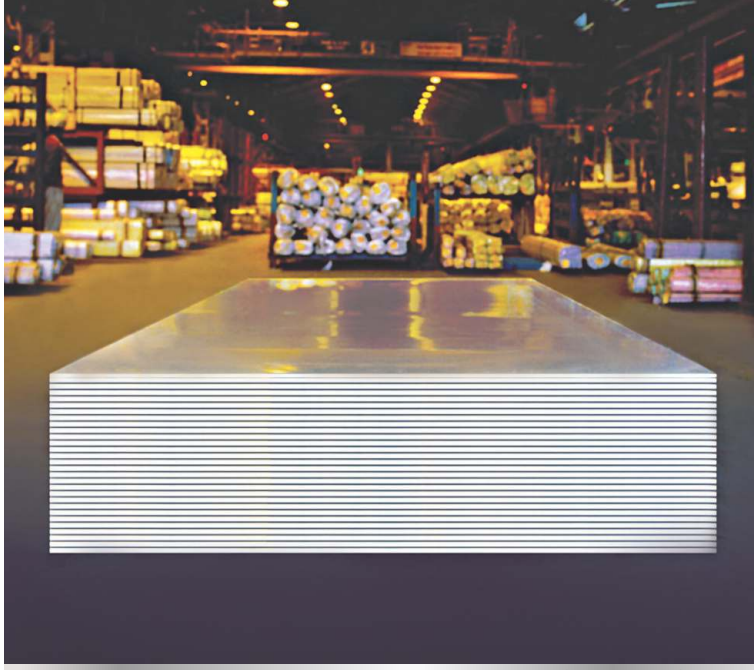
Alloys - AA	Temper	Thickness Range (mm)	Standard Width (mm)
1050, 1060, 1070, 1080, 1100, 1200, 3003, 3105, 5005 & 8011	F, O, H12, H14, H15, H16 & H18	0.28 - 1.20 0.30 - 1.20	500 - 1250 (For Sheets) 75 - 1250 (For Coils)

### E) Cold Rolled Coils for ACP

Alloys - AA	Temper	Thickness Range (mm)	Width Range (mm)	Coil ID (mm)
1100, 3003, 3004, 3105 & 5005	H14, H16, H18, H24, H28	0.15 - 0.58	900 - 1250	508
Cold Rolled Coils	HSRP			
1050	H22	0.98	121, 46, 201	508

#### Tempers

F - As Rolled, O - Soft, H12 - 1/4 Hard, H14 - 1/2 Hard, H16 - 3/4 Hard, H18 - Full Hard, H3X - Stress Relieved, H2X - Partially Annealed, H1XX, H3XX



Cold Rolled Sheets



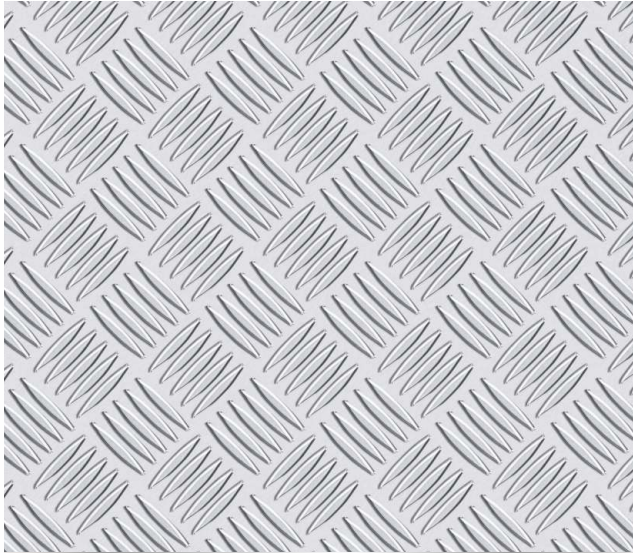
Cold Rolled Coils

## E) Cold Rolled Sheets

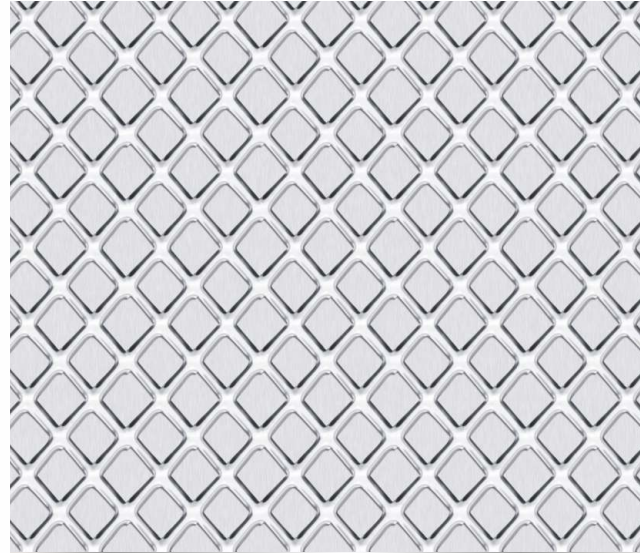
Alloys - AA	Temper	Thickness Range (mm)	Length Range (mm)	Width Range (mm)
1050, 1060, 1070, 1080, 1100, 1200, 1235, 3003, 3004, 3005 3105 & 8011	F, O, H12, H14, H16, H18 & H2X  H1xx, H3xx	0.15 - 6.00	600 - 7000	500 - 1600*
5005, 5052, 6061 & 6351	F, O, H12, H14, H16, H18 (For 5xxx series alloys) F, O, T4 & T6 (For 6xxx)	0.40 - 4 (For 5xxx series alloys) 1.50 - 5.99 (For 6xxx)	914 - 7000 (For T6 temper - maximum 3658mm)	1200 - 1600
5083, 5086 & 2219	(F, H18, O, in 2219)			1200 - 1500

- On-line Masking Film can be given for sheets in thickness above 0.70 mm.  
For lower thickness, manual interleaving with paper / polythene can be provided.
- Stretched sheets in 2.00-6 mm thickness can be provided.





Five bar Pattern Sheets



Diamond Pattern Sheets

## F) Flooring Sheets / Tread Plates

Alloys - AA	Temper	Thickness Range (mm)	Standard Width (mm)	Available Width (mm)	Length Range (mm)	Patterns	Pattern Height
3105, 6061, 3003, & 5052	F for AA 3105 alloy T6 for AA 6061	1.00 - 6.0	813	762, 813, 914, 940 & 1219. (1xxx, 3xxx - Max 1500)	1500 - 4500 (For AA6061 alloy maximum 3658)	Diamond, Five bar	0.35 mm (Min)

## G) Pattern Sheets

Alloys - AA	Temper	Thickness Range (mm)	Standard Width (mm)	Length Range (mm)	Patterns	Pattern Height
1200, 3003, 3105 & 8011	H3X	0.50 - 0.99	1220	1000 - 7000	Diamond, Five bar	0.25 mm (Min)





Circles

## H) Circles

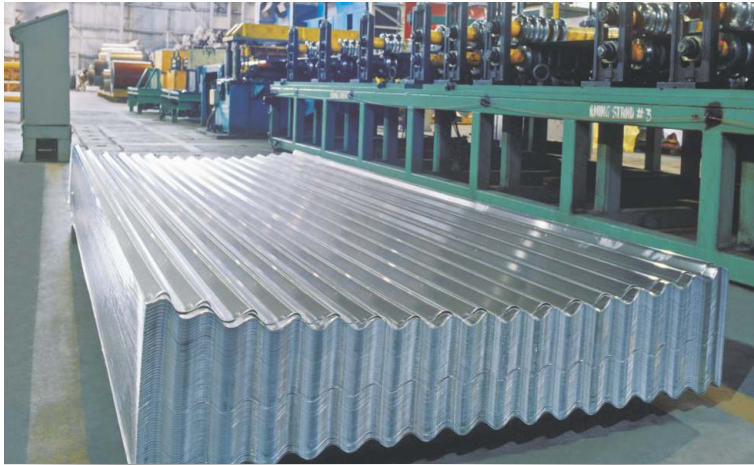
Alloys - AA	Temper	Thickness Range (mm)	Diameter Range (mm)
1050, 1060, 1070, 1080, 1100, 1200, 3003, 8011, 5005, 5754, 5052 & 4006 TK8146	O, H12, H14 , H16 & H18 (H3X for 5xxx series)	0.60 - 6.35	102 - 1250 (914 to 1250 is available in 2 to 3 mm thickness)

*Deep Drawing & Hard Anodising quality Circles can be supplied in alloy 3003.*

6351, 6061, & 6082	O	1.5 - 4.00	100-1000
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## I) Ovals

Alloys - AA	Temper	Thickness Range (mm)	Size (Minor/Major Axis in mm)
3003	H14	1.75 - 3.00	144 x 157 160 x 173 198 x 211 & 159.5 x 242.5



Circular Corrugated Sheets



Industrial Troughed Sheets

## J) Roofing Sheets

Type	Alloys - AA	Temper	Thickness Range (mm)	Dimension Details (mm)	Length Range (mm)	Pattern
Circular Corrugated Sheets	3003, 3105, & 8011	H14, H16, H18	0.35 - 1.22	16/75 mm Corrugation (Overall Width - 1250 mm) 10/75 mm Corrugation (Overall width - 950mm) 12/75 mm Corrugation (Overall width - 800mm)	1000 - 7000	Plain Stucco Embossed & Colour Coated
Industrial Troughed Sheets	3003, 3105, & 8011	H14, H16, H18	0.40 - 1.63	6/5" Corrugation (Overall Width - 795 mm) 7/5" Corrugation (Overall Width - 920 mm) 8/5" Corrugation (Overall Width - 1044 mm)	1000 - 7000	Plain Stucco Embossed & Colour Coated



Colour coated roofing sheets manufactured by Hindalco



Lithographic Coils / Sheets



Lamp Cap Stock



Closure Stock (Sheet & Coil)



SRC Foilstock



### K) Lithographic Coils / Sheets

Alloys - AA	Temper	Thickness Range (mm)	Width (mm)	Flatness (I-Unit)	Coil ID (mm)	Sheet Length (mm)
1050	H18	0.20 - 0.30	640 - 1420	Less than 5	508	1000 - 2000

Coils / Sheets in tension levelled condition only

### L) Lamp Cap Stock

Alloys - AA	Temper	Thickness Range (mm)	Width Range (mm)	Coil Weight (Min.)	Coil ID (mm)	Thickness Tolerance	Oiling
8011, 5251, 3004 & L8S	O for L8S & AA 5251 H14 & H16 for AA 8011 / 3004	0.25 - 0.40	75 - 915	75 kgs.	200	±0.02 mm	Surface oiled after annealing

### M) Closure Stock (Sheet & Coil)

Alloys - AA	Temper	Thickness Range (mm)	Width Range (mm)	Thickness Tolerance	Length Range For Sheet	Coil ID (mm)
8011 & 827B 3105	O, H14, H16 & H18	0.14 - 0.25	584 - 867	±0.005 mm	450 - 900	200, 500

### N) Foilstock

Alloys - AA	Temper	Thickness Range (mm)	Width (mm)	Coil Density	Coil ID (mm)	Thickness Tolerance
1100, 1200, 1235, 8011 & 8079	H14, H16, H18 & F	0.25 - 0.60	700 - 1050 1240 - 1930	2.8 - 3.4 5.5 - 6.5	200, 508 & 610	± 4.0 %

### O) Cablewrap Stock

Alloys - AA	Temper	Thickness Range (mm)	Width (mm)	Coil Id (mm)	Thickness Tolerance	Length
1200 & 8011	O, H18	0.17 - 0.20	720 - 1220	150, 203, 300 & 508	±0.01 mm	Equivalent to 2 Km or multiples

### P) Finstock

Alloys - AA	Temper	Thickness Range (mm)	Width (mm)	Coil ID (mm)	Thickness TOLERANCE	Core
1050, 1060, 1100, 1200, 3003 & 8011	O, H12, H22, H14, H24, H16, H26 & H18	0.08 - 0.06	10 - 1220	76, 150, 203, 300, & 508	± 5.0% mm	Plastic / Steel / Paper

### Q) AL-Clad Sheets / Coils / Finstock

Core Alloy	Clad Alloy	Temper	Thickness Range (mm)	Coil ID (mm)	Width Range	
					Coils (mm)	sheets (mm)
AA 3003	AA 4045, AA 4343 & AA 7072 5xxx	O, H12, H22, H14, H24, H16, H26, H18, H19 & F	0.08 - 4.00	76, 150, 203, 300, & 508	12 - 915	500 - 915



#### MARKETING OFFICE

7th Floor, Birla Centurion, Pandurang Budhkar Marg, Worli, Mumbai - 400 030  
• Tel.: +91-22-6662 6666/30 • Fax: +91-22-6261 0400/0500 • [www.hindalco.com](http://www.hindalco.com)

#### EXPORT OFFICE

7th Floor, Birla Centurion, Pandurang Budhkar Marg, Worli, Mumbai - 400 030  
• Tel.: +91-22-6662 6666 • Fax: +91-22-6261 0400/0500 • [www.hindalco.com](http://www.hindalco.com)  
• [pravin.pandey@adityabirla.com](mailto:pravin.pandey@adityabirla.com), [shantanu.pattnaik@adityabirla.com](mailto:shantanu.pattnaik@adityabirla.com), [vijay.kanchangire@adityabirla.com](mailto:vijay.kanchangire@adityabirla.com)

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#### REGIONAL OFFICES

**NORTH:** Mindmill Corporate Compound,  
5th Floor, 24A, Film City Sector-16A, Noida (UP) 261 301.  
• Tel.: 0120-669 2100 • [l.mahapatra@adityabirla.com](mailto:l.mahapatra@adityabirla.com)

**SOUTH:** Industry House, 7th Floor, 45, Race Course Road,  
Bangalore 560 001, • Tel.: +91-80 -4041 6100 (2nd Floor),  
• Tel.: +91-80 -4041 6000 (7th Floor) • Fax: +91-80- 4041 6060  
• [sathish.chandra@adityabirla.com](mailto:sathish.chandra@adityabirla.com)

**EAST:** Jeevan Deep, 1 Prafulla Chandra Sen Sarani,  
Kolkata - 700 017 • Tel.: +91-33-2280 9710 • Fax: +91-33-2288 6139  
• [dasgupta.r@adityabirla.com](mailto:dasgupta.r@adityabirla.com)

**WEST:** Ahura Centre, 1st Floor, 82 Mahakali Caves Road,  
Mumbai - 400 093 • Tel.: +91-22- 6691 7000  
• Fax: +91-22-6691 7050 / 7070 • [s.nandi@adityabirla.com](mailto:s.nandi@adityabirla.com)