

COLD ROLLED STEEL STRIPS

Steeling in March



Profile of Pennar

Pennar Industries Limited is a multi-product, multi-location enterprise. The company manufactures five different products:

- Cold Rolled Steel Strips
- Cold Rolled Formed Sections
- Engineering Components
- Road Safety Systems
- Precision Tubes

Pennar has received the ISO 9001:2000 Quality Certification from RWTUV of Germany and committed to achieving excellence in the quality of products and aims for complete customer satisfaction.

The CRSS Division, with its units at Patancheru and Isnapur, 40 km from Hyderabad, has a combined annual Cold Rolling capacity of 120,000 Metric Tons. Pennar manufactures steel strips up to 720 mm width and thickness range of 0.25-4.5 mm both in coil and sheet form. Pennar caters to a wide range of customers from various sectors like:

- Automobiles
- White goods
- Domestic Appliances
- Bearings
- General Engineering Industries.

Facilities

Pennar Industries Limited is equipped with state-of-art equipment which ensures the quality of finished product:

- Semi-continuous push-pull type pickling lines feed the rolling mill with scale-free, oiled and bright HR coils
- PLC-controlled MECON WEAN-UNITED 4 Hi-cold rolling mills equipped with non-contact automatic gauge ensures rolling of strips of uniform gauge with thickness tolerance up to +/- 0.020 mm
- 46 bell-type annealing furnaces enable proper heat treatment of the cold rolled strips, in order to achieve the desired mechanical properties
- Modern 'skin pass' mills, controlled by PLC and Digital Drives and with Bridle rolls and Stretch-leveling facilities ensure desired surface finish (bright/ fine matt/ matt) to annealed coils
- CR slitting lines help to meet the width requirements to a tolerance of 0.15 mm on either side



4 Hi-cold rolling mills



Bell-type annealing



Roll grinding

Product Features

Product range: Width	: 18-720 mm
Thickness	: 0.25 - 4.5 mm
Coil Weight	: 3 - 7 kg per mm of strip width
Coil ID	: 400 / 500 mm
Cut-to-length	: 500 - 4000 mm

Grades : D/ DD/ EDD /St-42 /St-52 / MC 11 / MC 12 / 55C6/ FH / HH / QH I CBO I C30 I HRD / HREDD / FE330 / FE410 / SAPH440 etc., and semi-killed for laminations and enameling quality grades conforming to domestic and international standards

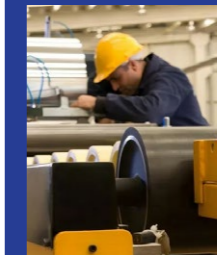
Applications : Two wheelers (Rear fender, Muffler body, Fuel tank, Mudguard, F rant frame)

Four-wheelers (Assembly bumper, Cross member, Front panel, Support panel, Pail roof side)

Refrigerators I Air-conditioners (Door and Side panels, Compressor shells and other accessories)

Bearings (Cages, Bimetal used for Housings)

General Engineering (Electrical Laminations, Oil filters, Containers, Gear cases, Cycle rims, Connectors)



Mechanical Testing



CR Slitter



Cut-to-length Machine

Total Quality Management

Stringent quality control measures at every stage of the manufacturing process, right from the selection of raw material to chemical analysis using a spectrometer and measuring surface roughness by using Ra Value testing machine.

Every process is closely monitored and endproducts are subjected to a battery of tests to determine hardness, tensile strength, elongation and drawability in order to meet stringent customer specifications.

Pennar has a team of well qualified engineers committed to deliver customer satisfaction through quality products and ISO 9001:2000 Quality Certification from RWTUV of Germany.



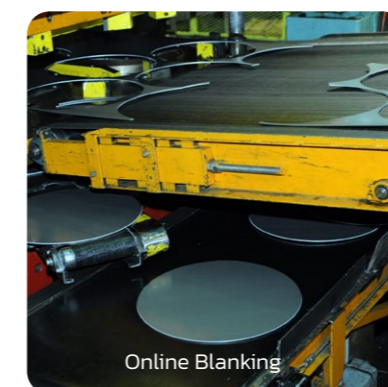
Quality Policy

We, at Pennar, are committed to producing and providing steel based products and associated services for customers all over the world.

We strive to achieve excellence in the Quality of Products we manufacture and the Service we provide to our Customers.

It is our endeavour to create a working environment where motivated employees communicate freely and where innovation is encouraged, to enable continual improvement in all areas.

We work together to achieve "Complete Customer Satisfaction through Total Quality Management".



Online Blanking

Customer Delight

As a part of value addition, Pennar has started supplying the customers with Blanks in various sizes and shapes. Pennar can offer blanks upto 300mm dia. and have plans to go upto 500mm dia with thickness range of 0.50mm to 6mm. Pennar has state-of-art tool room facilities and has the ability to make the desired tools economically with minimum lead time.

The Company has Built up a Large Base of Satisfied Clientele

Automobile Industry

- Ashok Leyland and Ancillaries
- Bharat Earth Movers Ltd.
- Bajaj Auto and Ancillaries
- Eicher Motors Ltd.
- Ford India Ltd.
- General Motors Ltd.
- Hyundai Motors India Ltd.
- Hero Honda and Ancillaries
- IFB Automotive Pvt. Ltd.
- Lucas TVS Ltd.
- Mahindra & Mahindra Ltd.
- Maruti Udyog and Ancillaries
- TVS Motors Company Ltd and Andlfaries
- TELCO and Ancillaries
- Toyota Kirloskar Motors Ltd.

Bearings, Electrical & General Engineering

- Aquasab Engineering
- Bharat Heavy Electricals Ltd.
- Brakes India Ltd.
- Bimetal Bearings Ltd.
- Blow Plast Ergonomics Ltd.
- Crompton Greaves Ltd.
- Harsha Engineers Ltd.
- HBL Nife Power Systems Ltd.
- Kirloskar Oil Engines
- Minex Metallurgical Ltd.
- Mid-Field Steels Pvt. Ltd.
- PHC Manfactring Ltd.
- ToCheunglee Stationery Mfg. Co.
- Vijai Electricals Ltd.

White Goods Industry

- BPL Ltd.
- Electrolux Ltd.
- Godrej & Boyce Mfg. Co. Ltd.
- Kirloskar Copeland Ltd.
- LG Appliances
- Tecumseh Products India Ltd.
- Voltas Ltd.
- Videocon Appliances Ltd.
- Whirlpool India

Marketing Network

To serve a wide customer base from the automobile, white goods, domestic appliances, bearings and general engineering industries. Pennar Industries has established a network of Marketing Offices at Mumbai, Chennai, Bangalore, Hyderabad, Pune, Faridabad, Coimbatore, Hosur, Indore and Kolkata.

Technical Specifications Of Pennar Colo Rolled Steel Coils & Sheets

Surface Finish, Standards					
Surface Finish		Cold Rolled Product		Hot Rolled Product	
Brighi	: Ra - 0.50 Microns Max.	IS 513	- 1994	IS 2062	- 1999
Very fine Matt	: Ra - 0.40 to 0.70 Micron	IS 1570	- 1978	IS 1079	- 1994
Fine Matt	: Ra - 0.60 to 1.20 Micron	BS 1449	- 1983	BS 1449	- 1983
Matt	: Ra - 1.00 to 1.60 Micron	DIN 1623	- 1986	DIN 1614	- 1986
Rough Matt	: Ra - Above 1.50 Micron	JIS 3141	- 1990	JIS 3131	- 1990
		DIN 1624	- 1987	JIS 3113	- 1990
		IS 4397	- 1999	IS 5986	- 2002
		IS 2507	- 1975	IS 8500	- 1991
		Thickness range 0.25mm to 4.5mm		Thickness range 1.6 mm to 6.0mm	

Cold Rolled Product (Special Grades of Steels)							
	Chemistry (%)				Properties		
	C	Mn	S	P	UTS - Min	El on 80 GL	Hardness
DIN 1623	0.25	1.50	0.04	0.04	42 Kg/mm2	16% min	25 VPN min
ST42/IS 1570	Max	Max	Max	Max			
MC 11	0.35-0.45	0.6-0.9	0.05	0.05	50 kg/mm2	12% min	50 VPN min
MC 12	0.50-0.60	0.6-1.00	0.05	0.05	60 kg/mm2	10% min	65 VPN min
			Max	Max			

Mechanical / Metallurgical Properties						
Quality	Carbon % (max)	Tensile strength kg/mm ²	Hardness HV	Elongation % on 80mm GL	Bend Paralled to rolling	Bend perpendicular to rolling
Full Hard	-	55 (min)	160 - 240	-	-	-
Half Hard	-	43 (min)	135 - 180	-	-	180 Degree/3t
Quarter Hard	-	36 (min)	110 - 135	-	90 Degree/1t	180 Degree/2t
Drawing	0.12	28 - 42	120 (max)	28 (min)	180 Degree Close	180 Degree Close
Deep Drawing	0.10	28 - 38	110 (max)	32 (min)	180 Degree Close	180 Degree Close
Extra Deep Drawing	0.08	28 - 36	105 (max)	36 (min)	180 Degree Close	180 Degree Close

Tolerance on Width	
Upto 2.0mm	+/- 0.15mm
> 2.00mm	+/- 0.20mm
For all HRSP width tolerances	+/- 0.50mm on nominal width

Tolerance Band on Nominal Thickness						
Nominal Thickness (mm)		Nominal Width				
Over	Upto/Including	Less than 150 mm	> 150 < 300	> 300 < 450	> 450	
0.25	0.60	0.04	0.05	0.06	0.06	
0.60	1.20	0.06	0.06	0.06	0.06	
1.20	2.00	0.08	0.08	0.10	0.10	
2.00	3.00	0.10	0.10	0.10	0.10	
3.00	4.50	0.12	0.12	0.14	0.14	

For all HRSP thickness tolerance is +/- 0.15 on nominal thickness

Tolerance on Length			
Thickness (mm)	Length	Tolerance Band	
		for Matt Surface	for Bright Surface
< 1.00 mm	Upto 4000 mm	3 mm	5 mm
> 1.00 < 2.00 mm	Upto 3000 mm	3 mm	5 mm
> 2 mm < 6 mm	Upto 3000 mm	5 mm	5 mm
Panel	Upto 4000 mm	1 mm	



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