



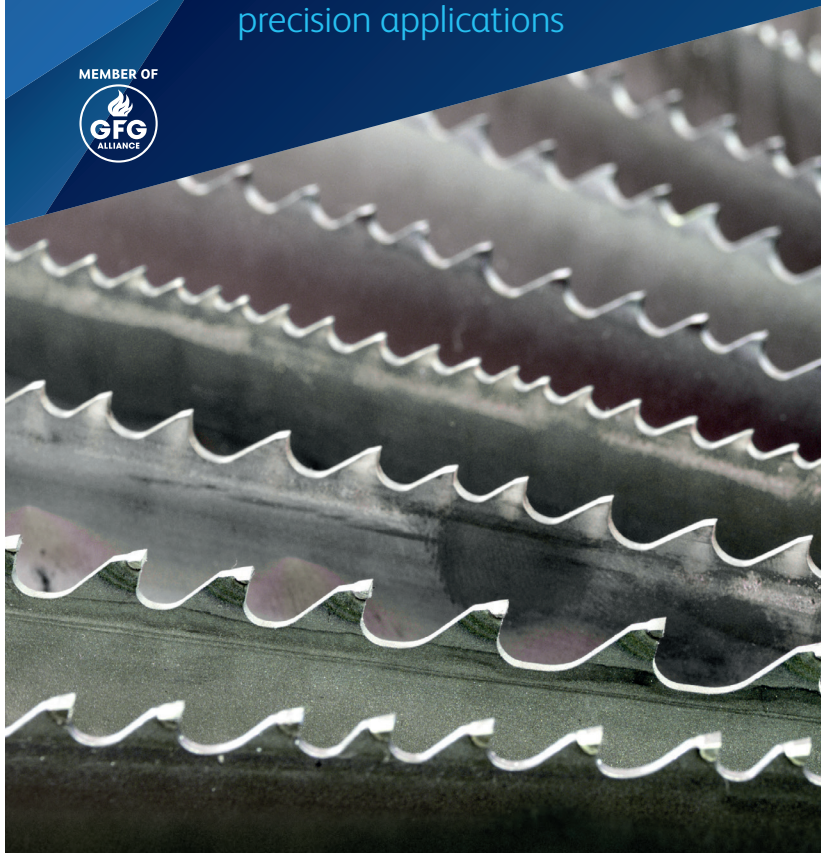
**LIBERTY**

STEEL

# Narrow Strip

Engineered for  
precision applications

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## Engineered for precision applications

Our narrow strip products are manufactured and delivered to the exacting specifications demanded by highly specialised quality critical industries throughout the world.

Liberty Speciality Steels has a long established reputation for providing precision narrow strip products that can be tailored to meet the specific needs of customers in many market sectors. Our range of steel grades from alloy, stainless, high carbon, free cutting, boron and medium to low carbon steels, offer varying strength, formability, durability and hardness properties to suit the requirements of a variety of end applications.

Our range of high-quality strip steels are used to manufacture diverse components, from seat-belt mechanisms to bandsaw blades and from industrial needles to plough blades. They can be used for cold rolling and in presswork and engineering industries.

The main markets we serve include:

- Cold Rollers
- Razor Blades
- Bandsaw Blades
- Industrial Needles
- Keys
- Agricultural
- Automotive

Our Narrow Strip Mill has extensive experience of hire rolling a vast array of different types of ferrous and non-ferrous alloy, special metals and stainless steel grades.

The quality of our products combined with our wide technical knowledge, specialist logistics expertise and precision manufacturing enable us to service a global network of customers.

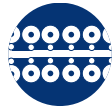
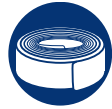
Ongoing research, development and investment ensure that we continue to lead the way in steel advances, allowing us to offer cutting-edge products that keep pace with the very latest developments in your industry.



## Slab Processing

Slab  
deliverySlab  
inspectionRe-heating  
furnace

## Strip Processing

4 Stand  
roughing mill2 Stand  
intermediate  
mill6 Stand  
finishing millLaminar water  
cooling

Coiling

## Optional Treatments

Strand  
pickling

Oiling



Annealing

2  
SlittersCut to  
lengthTemper  
mill

## Despatch



Warehousing

Packing  
and  
despatch

Tailor rolled narrow strip can be produced to meet your specific requirements and properties to allow you to meet your customers' expectations.

This is coupled with a service package specific to your requirements from a fully integrated supply chain. Utilising our integrated supply chain enables us to react quickly to our customers with precision products, short lead times, small quantities and just-in-time deliveries.

#### **Made to measure**

Product designers in the automotive, agricultural and many other sectors have already realised the performance benefits and long-term cost savings offered by incorporating narrow strip into their components.

Many of these components are used in safety critical and highly specialised applications, which require parts manufactured to extremely tight tolerances.

Liberty Speciality Steels has the capability to manufacture narrow strip to meet such stringent specifications. Tight gauge tolerances in the mill result in excellent repeatable performance in component manufacture, with consistent dimensions for highly specific applications.

Our hot rolled strip can be produced in tailor made sizes to fit the requirements of your product design, whether it is surgical knife or lawn mower blade.



Product performance can be customised too so that the strength, formability and hardness of the steel are matched to the demands of your application. We can advise on steel selection and usage to enhance the design of new components or to support weight reduction and cost-saving initiatives.

#### **Flexible service**

It is not just our products that are customised to suit your needs, the service we offer is tailored to meet your specific technical, logistical and commercial support requirements.

A dedicated account team will assess your needs and liaise with the relevant logistics and production teams to ensure we provide precisely the product you need, delivered just when you need it.

We can offer support ranging from day-to-day management and liaison, to advice and guidance on long-term initiatives or product developments.

Internationally, Liberty Speciality Steels has the backup of its own network of offices strategically located across the globe. This is all supported by our completely integrated internal steel supply chain which enables us to react quickly to projects with short lead times, small quantities and achieve just-in time deliveries.

Wherever you are we will work closely with you to provide the service package you require, ensuring you always gain optimum value from the steel you buy.

## Steel that makes the grade

We can produce hot rolled narrow strip up to 500mm wide and in a variety of grades. Each of our products offers a set of specific properties that makes them suitable for a range of applications in a whole host of market sectors.

Our narrow strip products include:

### Alloy grades

**Properties:** Alloying additions, including manganese, chromium, vanadium, nickel, silicon and tungsten, creating specific properties for different applications.

**Typical applications:** Clutch components, bandsaw blades, lock parts, ice axes, saws and knives.

### Stainless steels

**Properties:** Martensitic, ferritic and austenitic grades are available, offering excellent hardness and corrosion resistance.

**Typical applications:** Food-processing knives, cutlery, scissors, surgical and razor blades

### Hire rolling

Typical grades we roll include high nickel alloys, nickel copper alloys, nickel chrome alloys, nickel based super-alloys, cobalt based super-alloys, maraging steel and specialised stainless steels.

## Free-cutting steels

**Properties:** Highly machinable low carbon steels.

**Typical applications:** Keys and other parts with processing requiring rapid metal removal

## High carbon grades

**Properties:** Available with a wide range of yield and tensile strengths. Higher carbon levels give greater hardness and abrasion resistance.

**Typical applications:** Bandsaw blades, industrial needles, plane blades, files and cutting tools.

## Low carbon, medium carbon grades

**Properties:** Combination of good strength and ductility. Available in variety of yield and tensile strength ranges to suit specific applications.

**Typical applications:** Pulley wheels, chains, washers, ratchets and lock parts.

## Boron grades

**Properties:** Medium carbon steels with the addition of boron to give the excellent hardenability of higher carbon and lower alloy steels.

**Typical applications:** Shovels, harrow discs, mower blades, agricultural knives and chain side plates.

## HSLA and low alloy grades

**Properties:** HYPRESS steels offer excellent strength to weight ratios along with good formability and weldability.

**Typical Applications:** Seat-reclining mechanisms, seat-belt pre-tensioners, seat slides, pipe couplings and brake components.





## Width Tolerances

	Metric (mm)			
	Width	Thickness	Normal tolerances (+/-)	Fine tolerances (+/-)
Mill edge	180-250	All thicknesses	1.5	1.5
	251-400	-	2.0	1.8
	401-500	-	2.5	2.1
Sheared edge	26-250	1.5-3.0	0.25	0.19
	26-250	3.01 and above	0.25	0.25
	251-465	1.5 and above	0.25	0.25

Imperial (in)			
Width	Thickness	Normal tolerances (+/-)	Fine tolerances (+/-)
7.09-9.84	All thicknesses	0.0591	0.0591
9.85-15.75	-	0.0787	0.0709
15.76-19.68	-	0.0984	0.0827
1.023-9.84	0.059-0.118	0.0098	0.0075
1.023-9.84	0.110 and above	0.0098	0.0098
9.850-18.31	0.059 and above	0.0098	0.0098

\* Normal tolerances based on EN10048.

\*\* Fine tolerances by agreement. Minimum quantity restrictions may apply.

## Thickness Tolerances

	Metric (mm)			
	Width	Thickness	Normal * tolerances (+/-)	Fine ** tolerances (+/-)
Mill or sheared edge	All widths	1.5 < 2.0	0.10	0.06
		2.0 < 3.0	0.11	0.06
		3.0 < 4.0	0.11	0.07
		4.0 < 5.0	0.12	0.07
		5.0 < 6.0	0.13	0.07
		6.0 < 8.0	0.14	0.09
		> 8.0	0.14	0.09

Imperial (in)			
Width	Thickness	Normal * tolerances (+/-)	Fine ** tolerances (+/-)
All widths	0.059 < 0.079	0.0039	0.0024
		0.079 < 0.118	0.0043
		0.118 < 0.157	0.0043
		0.157 < 0.197	0.0047
		0.197 < 0.236	0.0051
		0.236 < 0.315	0.0055
		> 0.315	0.0055



## Narrow strip product range

Liberty Specialty Steels produce hot rolled narrow strip, up to 500mm (19.685") wide and in a variety of grades.

### Mill Edge\*

	Metric (mm)		Imperial (in)	
	Width	Thickness	Width	Thickness
Over 0.85% Carbon & Low Alloy	180-350	1.5-13.5	7.087-13.780	0.059-0.531
	351-420	2.0-9.0	13.781-16.535	0.079-0.354
	421-500	3.0-9.0	16.536-19.685	0.118-0.354
Stainless Steel	200-400	2.0-7.0	7.874-15.748	0.079-0.276
0.25 - 0.85% Carbon	180-350	1.5-13.5	7.087-13.780	0.059-0.531
	351-430	2.0-9.0	13.781-16.929	0.079-0.354
	431-450	2.5-9.0	16.930-17.717	0.098-0.354
	451-500	3.0-9.0	17.718-19.685	0.118-0.354
Boron	180-350	1.5-13.5	7.087-13.780	0.059-0.531
	351-430	2.0-10.0	13.781-16.929	0.079-0.394
	431-460	3.0-10.0	16.930-18.110	0.118-0.394
Up to 0.25% Carbon	180-350	1.5-13.5	7.087-13.780	0.059-0.531
	351-430	2.0-12.0	13.781-16.929	0.079-0.472
	431-450	2.5-10.0	16.930-17.717	0.098-0.394
	451-500	3.0-10.0	17.718-19.685	0.118-0.394

### Sheared Edge\*

	Metric (mm)		Imperial (in)	
	Width	Thickness	Width	Thickness
Over 0.85% Carbon & Low Alloy	26-340	1.5-3.5	1.024-13.386	0.059-0.138
	26-390	2.0-3.5	1.024-15.354	0.079-0.138
	26-410	3.0-3.5	1.024-16.142	0.118-0.138
	50-465	3.5-7.0	1.969-18.307	0.138-0.276
0.25 - 0.85% Carbon	26-340	1.5-3.5	1.024-13.386	0.059-0.138
	26-390	2.0-3.5	1.024-15.354	0.079-0.138
	26-410	3.0-3.5	1.024-16.142	0.118-0.138
	50-465	3.5-7.0	1.969-18.307	0.138-0.276
Boron	26-340	1.5-3.5	1.024-13.386	0.059-0.138
	26-390	2.0-3.5	1.024-15.354	0.079-0.138
	26-420	3.0-3.5	1.024-16.535	0.118-0.138
	50-450	3.5-8.0	1.969-17.717	0.138-0.315
Up to 0.25% Carbon	26-340	1.5-3.5	1.024-13.386	0.059-0.138
	26-390	1.6-3.5	1.024-15.354	0.063-0.138
	26-420	2.5-3.5	1.024-16.535	0.098-0.138
	26-440	3.0-3.5	1.024-17.323	0.118-0.138
	50-465	3.5-8.0	1.969-18.307	0.138-0.315

\*Contact us for enquires outside these ranges.

## Conditions of Supply

Material can be supplied in a variety of conditions:

### Surface condition

Black or pickled (chemically descaled) and oiled.

### Edge condition

Mill or rotary sheared edge.

### Metallurgical properties

As rolled or annealed condition to meet specific metallurgical properties on request.

### Gauge tolerances

Standard gauge tolerances to EN 10048:1997, ASTM A568, A635 and A749.

Tighter tolerances are available on most grades and sizes on request.

### Width tolerances

Mill edge and rotary sheared edge strip to EN 10048:1997, ASTM A568, A635 and A749. Tighter tolerances are available for sheared edges on request.

### Edge camber

Edge camber to ASTM A568, A635 and A749.

Edge camber capability available on request for EN 10048:1997.

### Coil weight

Typical coil weight: Up to 9.5kg/mm, 475 PIW.

### Coil diameter

Inside diameter: 508mm (20").

Outside diameter: 1350mm (53").

### Cut lengths

Size range: 1000mm-6000mm (39.37"-236").

Normal tolerances: EN 10048:1997, ASTM A568, A635 and A749.

Fine tolerances available on request.

Bundle weight: Up to 5000kg (11000lbs).

### Packaging

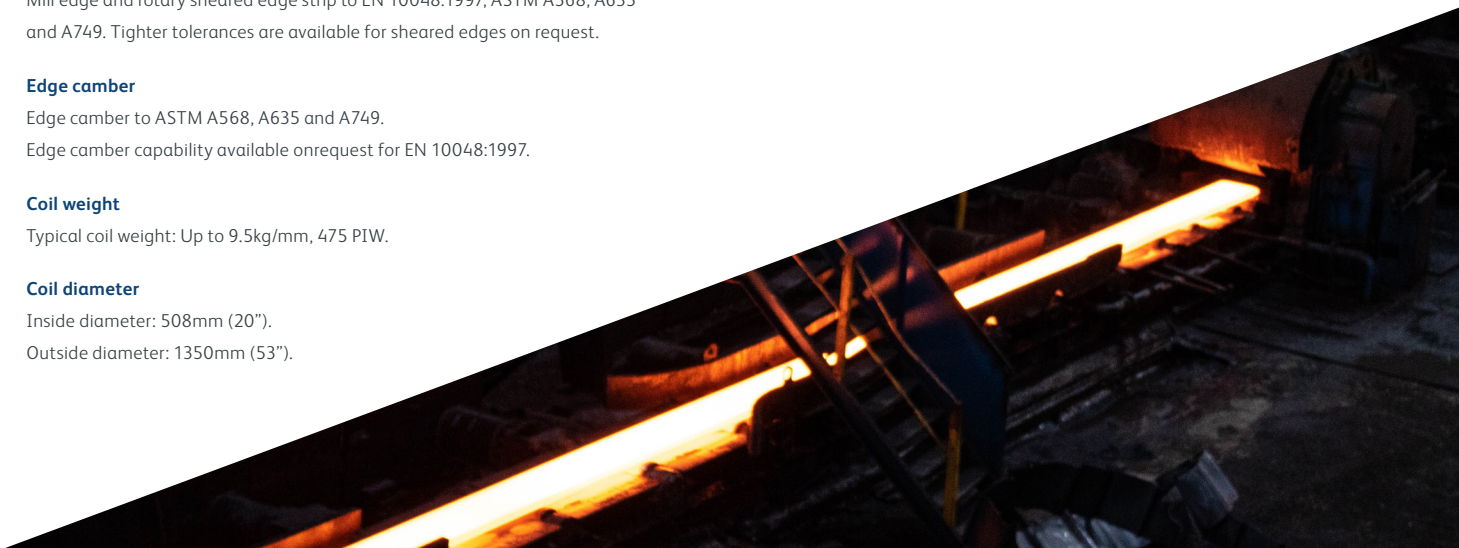
Warehousing facilities are available for wrapping and packaging to specific customer requirements.

### Quality standard

Narrow Strip is accredited to BS EN ISO 9001 quality standard.  
Certificate number FM00728.

### Environmental Management System

Narrow Strip is accredited to BS EN ISO 14001.



## Sales offices and contacts

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