

Module 1 - Basic Facts about Chain

Roller / Drive / Transmission Chain

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Types of Chain

Chain can be divided into categories depending on its function and the application its used for.

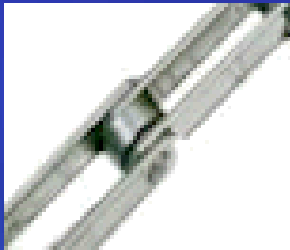
This module will focus on Roller chain.



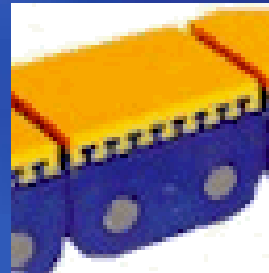
Roller chain - suitable for 1000s of applications involving power transmission. Transmission chain is sometimes called roller or drive chain.



Leaf chain - for fork truck and other lifting applications.



Conveyor chain - for applications where items need to be transported.



Special Chain - for applications where the chain is required to perform a specific function.

What is chain used for?

There are 1000s of uses, it's not just for bicycles!

Chain is used in virtually every industry you can name, in applications ranging from food and drink to mineral processing industries.

Other applications include:

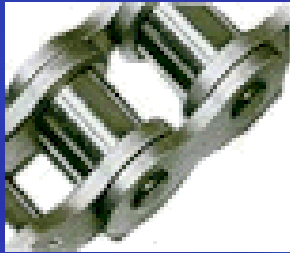
- **Timber industry**- saw mills and trough conveyors.
- **Theme park**- roller coaster and water rides.
- **Sugar** - beet conveyors, rock catchers and diffusers.
- **Oilfield** - transmission and mud pump drives.
- **Cement** - elevators, scrapers and crusher feeders.
- **Bakery** - in baking ovens, bread coolers and ancillary conveyors.
- **Agriculture** - combine harvesters and grain elevators.



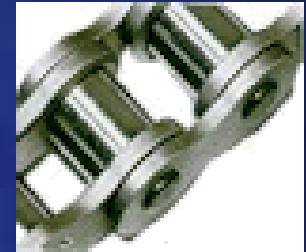
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Uses and benefits of chain

- More accurate than belt drives



- High efficiency (over 98%)



- High power for size

- Unique properties for "inching" applications

- Highly versatile - can be used for power transmission and all sorts of applications for moving product

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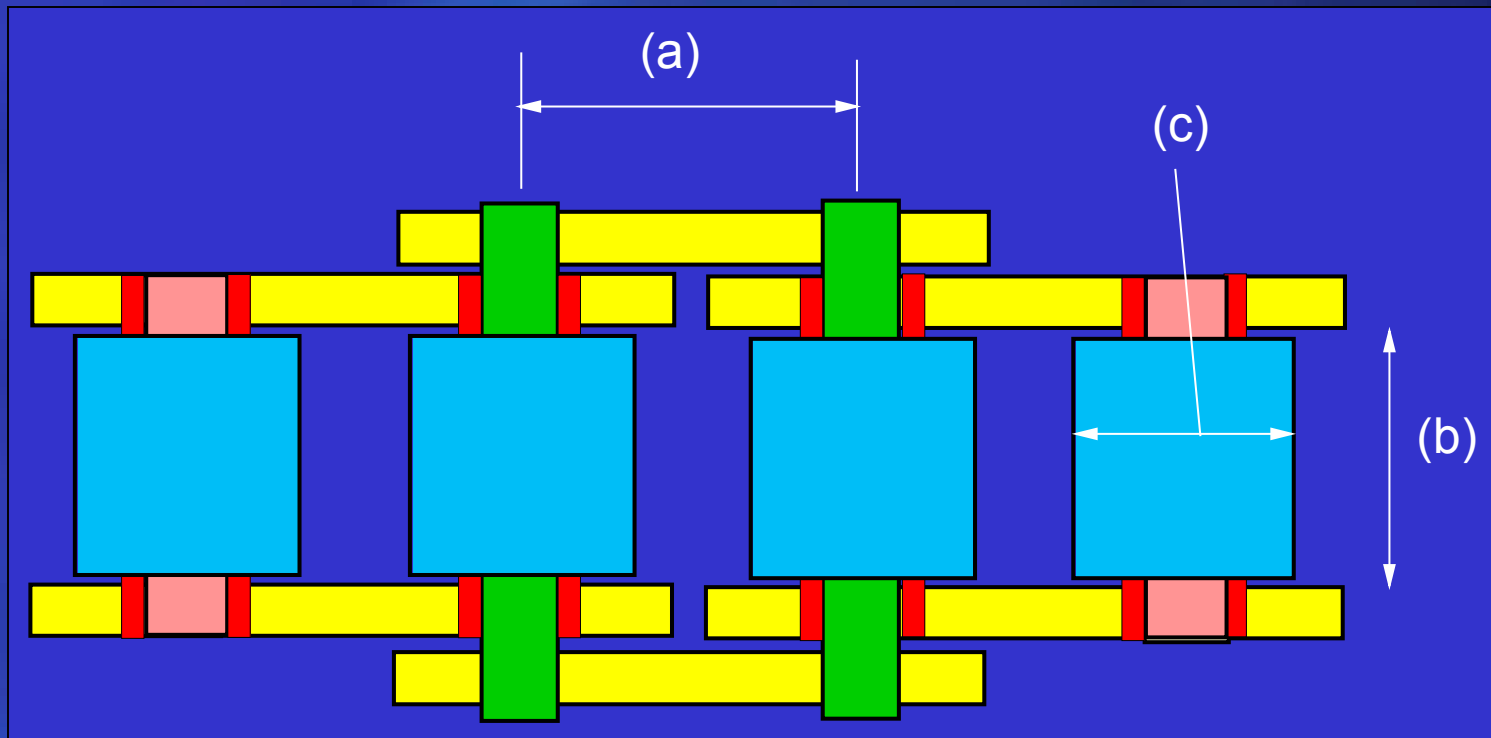
Component Parts

Each roller chain is made up of the same key components. The diagram below shows how they fit together to make the chain.



How to identify a chain

Normally only 3 measurements are needed to identify a chain
(a) Pitch, (b) Width between inner plates
(c) Roller diameter



The Two Standards

The original dimensions for Hans Renold's chain were adopted as the British Standard and later the European Standard, this standard (ISO / BS) is the most common to be found in Europe and elsewhere.

The alternative to this is the American Standard (ANSI) which is used extensively in North America.

These standards are often found outside their principal regions on machines designed or built in one territory and exported to the other.

Renold manufactures chains to both standards. Around 92% of transmission chain sold in Europe is ISO/BS standard.

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ISO/BS Numbering System

- Numbering system explains pitch and number of strands
- E.g. half inch pitch chain is 08B-1
 - The 1st two digits are the pitch size in 1/16th of an inch, therefore 8/16th = half an inch
 - The B indicates European Standard
 - The 1 indicates a single strand (simplex chain)
 - The 2 indicates a double strand (double chain)
 - The 3 indicates a triple strand (triplex chain)

The common standards are 3/8", 1/2", 5/8", 3/4", 1", 1 1/4, 1 1/2" pitch chains. In there simplex, duplex and triplex forms they account for over 70% of all transmission chain sold.

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The Two Standards

ANSI

- Numbering system explains pitch and number of strands
- E.g. half inch pitch chain is 40-1
 - The 1st digit is the pitch size in 1/8th of an inch, therefore 4/8th = half an inch
 - The 0 indicates that it's a roller chain (a bush chain would feature a 5).
 - The 1 indicates a single strand (simplex chain)

Ordering

- Transmission chain up to 1" pitch is normally sold in 25ft lengths, boxed with connecting links. 1" pitch and above is sold in 10 ft lengths. All ANSI standard is sold in 10 ft boxes.
- When ordering chain with attachments (sometimes called adapted chain) you need to specify:
 - Base chain
 - Attachment requirement
 - One side or both sides
 - On inner or outer plates
 - Spacing (e.g every second outer)

Different types of Chain

The ISO specification only ensures that chain is interchangeable dimensionally and conforms to a minimum breaking load.

However, not all ISO chains are the same.

Chains are produced to different performance specifications and thus an ISO specification is not necessarily a good indication of chain life.

Useful Links on renold.com

- [Renold Chain Training Centre](#)
- [Transmission Chain selector](#)
- [Transmission Literature page](#)

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