

Transmission Chain: Components and Connecting Links

The Renold precision steel roller chain is a highly efficient and versatile means of transmitting mechanical power, which, in the field of industrial applications, has almost completely superseded all other types of chain previously used.

The illustration (right) shows component parts of the outer link and of the inner link of a Renold simple roller chain.

As illustrated, the Renold precision steel roller chain consists of a series of journal bearings held in precise relationship to each other by the constraining link plates. Each bearing consists of a bearing pin and bush on which the chain roller revolves. The bearing pin and bush are case hardened to allow articulation under high pressures, and to contend with the load carrying pressures and gearing action imparted via the chain rollers.

All chains are classified according to pitch (the distance between the centres of adjacent bearing pins), roller diameter and width between inner plates. Collectively, these dimensions are known as the gearing dimensions, as they determine the form and width of the sprocket teeth.

Standard links

The chain parts and connecting links illustrated are only indicative of the types available. Please refer to the appropriate product page for the parts relevant to individual chains.

No. 4
Inner Link (BS/DIN)
Roller Link (ANSI)



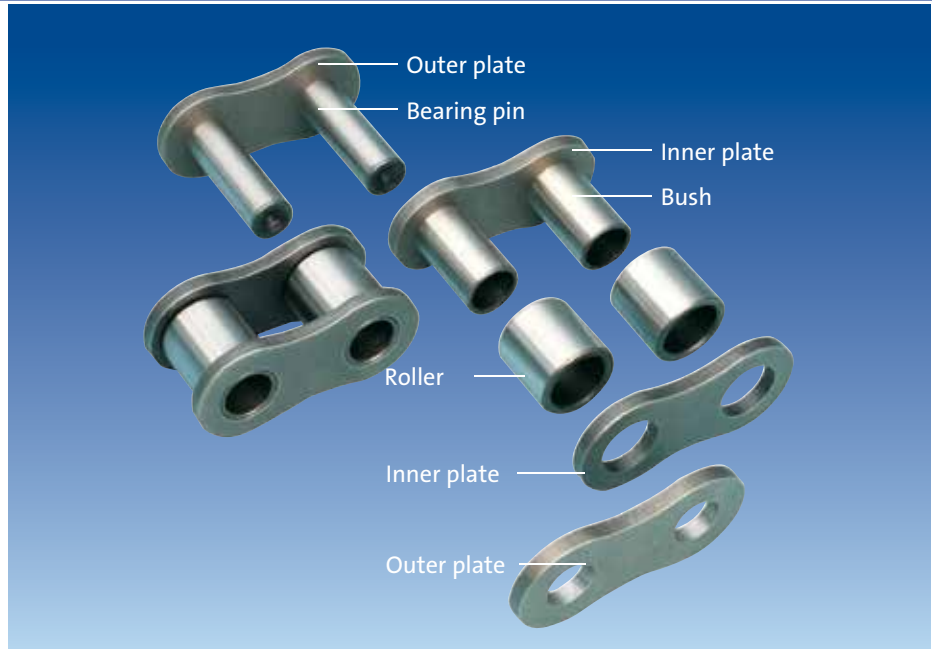
These are complete assemblies for use with all sizes and types of chain. The unit consists of two inner plates pressed on to the bushes which carry the rollers. (Inner links for use with bush chains have no rollers).

No. 107
Outer Link - Press Fit (BS/DIN)
Riveting Pin Link - Press Fit (ANSI)



For use with all sizes and types of chain where optimum security is desired. The link is supplied with bearing pins riveted into one outer plate. The other outer plate is an interference fit on the bearing pins, the ends of which should be riveted over after the plate is fitted.

Press fit connecting links should only be used once; new links must be used to replace dismantled links. (See 'Riveting Chain Endless' for full instructions).



No. 11
Connecting Link - Slip Fit
(BS/DIN/ANSI)



A connecting link supplied with two connecting pins riveted into the outer plate. The outer plate is a clearance fit on the connecting pins and is secured in position by a split pin through the projecting end of each connecting pin.

No. 26
Connecting Link - Slip Fit
(BS/DIN/ANSI)



Used on short pitch chains only. Supplied with two connecting pins riveted into the outer plate, the clearance fit connecting plate being secured by means of a spring clip, No. 27, which snaps into the grooves in the pins.

No. 58
Connecting Link - Press Fit
(BS/DIN/ANSI)



The standard connecting link for ANSI series detachable chains, also used on riveted chains where high speeds or arduous conditions are encountered. Supplied with two connecting pins riveted into the outer plate, the other outer plate being a press fit onto the pins and secured by split pins after assembly.

Press fit connecting links can only be used once; new links must always be used to replace dismantled links.

Cranked links

Apart from the specialised chains where the cranked link is an essential design feature, cranked links are used only where the chain length must be an odd number of pitches. This practice is not recommended; all drives should, wherever possible, be designed with sufficient overall adjustment to ensure the use of an even number of pitches throughout the chain. **DO NOT USE CRANKED LINKS ON IMPULSIVE, HIGHLY LOADED OR HIGH SPEED DRIVES.**

No. 12
Cranked Link - Slip Fit (BS/DIN)
Offset Link - Slip Fit (ANSI)



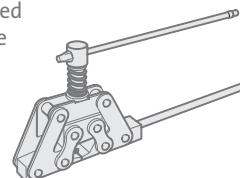
A single link with cranked plates pressed onto a bush and roller assemble at the narrow end. A clearance fit connecting pin (No. 128) is fitted at the wide end and is secured by a split pin.

No. 30
Cranked Link Double (BS/DIN)
Two Pitch Offset Link (ANSI)



Double cranked links are available for most sizes and types of chain. The unit consists of an inner link (No. 4), with cranked links retained permanently in position by a riveted bearing pin.

Screw operated extractors break chain by forcing the Renold end softened bearing pins out of the outer link plates. For other brands of chain, the rivet swell must first be ground away.



Solution Chains from Renold

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Synergy™

**LASTS 3 TIMES LONGER IN WEAR*
THAN YOUR CURRENT CHAIN
OR THE NEXT CHAIN IS FREE**

Renold Synergy Wear Life Guarantee

Renold Synergy® will last three times longer in wear* than your current non-Renold chain or your next chain is free. It's that simple

If you're experiencing unsatisfactory working life from a non-Renold chain, try Renold Synergy® and you will see productivity increase, downtime cut and costs saved.

We are so confident that it will significantly outlast any other non-Renold chain that we will give you a replacement chain free.

There has never been a better time to specify Renold Synergy® – the only high performance transmission chain.

Renold Synergy® has transformed the productivity and efficiency of all these industrial applications and more.

- Pharmaceutical
- Bottling
- Fruit Washing
- Iron & Steel
- Packaging
- Confectionary
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- Timber Processing
- Textiles
- Pipe Handling Conveyor
- Fibreglass Insulation
- Wood Board Processing
- Breeze Block Manufacturing
- Bakery
- Blast Freezer
- Wool Processing
- Furnace Conveyor
- Steel Crusher

For more details on the
Renold Synergy® Wear Life
Guarantee, go to
renold.com/synergypromotion

* Under normal operating conditions. For further information on the promotion and the manufacturer's recommendations please go to renold.com/synergypromotion

Solution Chains from Renold



The Renold Syno range sets a new benchmark for lube-free performance.

Renold Syno NP chain

This dry-to-the-touch chain now includes more performance enhancing characteristics than ever before. Using the latest techniques, Renold have incorporated special surface treatment processes to improve the bonding of the nickel plating. This type of plating is not prone to chipping or peeling as some other plated chains are prone to doing.

The pin coating minimises friction, improving wear life and reducing vibration, while the FDA-approved coating on the roller and the USDA H1-approved lubricant within the chain make it ideal for food processing environments.

- Dry-to-the-touch chain
- Never needs relubrication
- FDA-approved coating on rollers
- Nickel-plating on plates won't chip or peel
- Good resistance to corrosion
- Food industry-approved lubricant inside chain when supplied
- Standard chain dimensions so can be exchanged "like for like"
- Will run on standard sprockets
- BS: 1/2" to 1 1/2" simplex and duplex (06B-1 to 24B-1 and 06B-2 to 24B-2)
- ANSI: 1/2" to 1 1/4" simplex and duplex (40-1 to 100-1 and 40-2 to 100-2)

Renold Syno Nickel Plated chain outlasts any comparable competitor product promoted as low-lube or non-lube. It can be used in temperatures ranging from -20°C to 150°C. Special models for temperatures up to 200°C are also possible.



Syno NP

Renold Syno PC chain

Renold has added to its impressive Syno range of chain for applications where lubrication is either difficult or impractical. The latest element is the introduction of a poly-steel chain, Renold Syno PC chain, comprising a polymer inner link and stainless steel pins and outer plates.

With no metal bush or roller there is no lubricant required to facilitate metal-on-metal movement. This opens up applications where the chain could even run submerged in water if required.

This construction also means the chain is corrosion resistant, light weight and versatile. Attachments can be fitted to the outer plates if required.

- No lubrication required
- Can operate in wet conditions, even submerged
- Lightweight construction
- Attachments can be added



Syno PC

Renold Syno PB chain

For higher loads and more heavy-duty applications, the Renold Syno range takes on the serious business of wear and fatigue resistance through the addition of a polymer sleeve between the pin and bush.

- Absolutely no lubrication
- Highly durable and wear resistant polymer bush – exclusive to Renold
- Polymer roller tested for impact resistance and load capabilities
- Can be operated without any lubrication
- Available in 28B – 40B and ANSI 120 to 200

Ideal for applications where it is not possible or not advisable to lubricate a chain, Renold Syno Polymer Bush chain can be considered for:

- Outdoor or wash down environments
- Car assembly plants or steel mills
- Environments where lubrication may contaminate products
- Forestry; saw mills or paper mills
- Textile plants
- Mixers
- Environments where lubrication may cause contaminants to stick to the chain and possibly get into bearing areas, seizing up the chain.

With a corrosion resistant surface treatment adding to the variety of applications it can cope with, Renold Syno Polymer Bush chain is a truly versatile product.



Syno PB

Solution Chains from Renold



Nickel Plated chain

Renold Nickel Plated chain delivers excellent corrosion protection. Ideal for applications such as bottling where spillages can lead to corrosion the specification for this chain is designed to optimise its performance. Every modification is made to push the wear and fatigue resistance to the maximum as well as delivering corrosion resistance.

Features and benefits:

- Hexavalent chrome free
- 400 hours corrosion protection during salt spray tests to DIN 50021
- Cold extruded, solid bush and roller delivering maximum Renold performance
- Plates and rollers shot peened to our exact specifications
- Wear and fatigue resistance that delivers maximum working life
- Lubrication that improves wear performance
- Tensile strength is approximately 85% that of standard carbon steel chain



Stainless Steel chain

Renold Stainless Steel chain is made from high grades of rust-proof steel.

These perform extremely well in environments that are acidic, alkaline, where direct contact with food is a consideration, where the chain will be exposed to water, and for very high or very low temperature locations (-40° to +400°C) where resistance to corrosion is a requirement.

Renold Stainless Steel chain should be selected when resistance to chemical action is critical. It is manufactured using FDA approved material and is prelubricated with USDA H1 approved lubricant.

Features and benefits:

- All components made from rust-proof steel
- All components receive surface finishing to remove stress raisers
- Lubrication that improves wear performance
- Tensile strength is approximately 65% that of standard carbon steel chain



Zinc Plated chain

This is a new zinc plating from Renold. Ideal for applications susceptible to light corrosion, the new plating has one consistent appearance, replacing the yellow and blue chromated versions previously available and delivering the same high levels of corrosion resistance.

Every component is plated before assembly and the chain has improved wear resistance under normal loads due to the new surface treatment.

Features and benefits:

- Hexavalent chrome free
- 250 hours corrosion protection during salt spray tests to DIN 50021
- Cold extruded, solid bush and roller delivering maximum Renold performance
- Plates and rollers shot peened to our exact specifications
- Wear and fatigue resistance that delivers maximum working life
- Lubrication that improves wear performance
- Tensile strength is approximately 85% that of standard carbon steel chain



Solution Chains from Renold

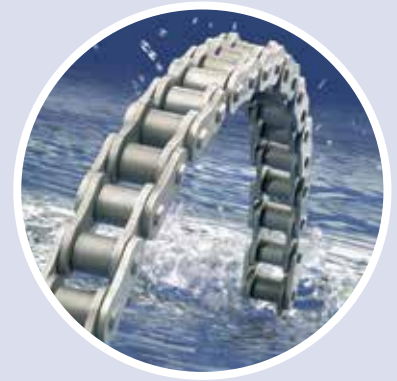
Renold Hydro-Service

Renold Hydro-Service chain delivers superior corrosion resistance, lasting as much as 30 times longer than standard carbon steel in applications that have to deal with water or salt spray. It is ideal for wash-down environments. Hydro-Service chain is also more economical, and stronger, than stainless steel.

Each component is mechanically treated prior to assembly to ensure consistent, secure protection. The surface treatment is free of hexavalent chrome, complying with legislation relating to environmental and health & safety considerations.

Features and benefits:

- Superior corrosion resistance
- Last as much as 30 times longer than standard carbon steel
- Hexavalent chrome free
- 350 hours corrosion protection during salt spray tests to DIN 50021
- Cold extruded, solid bush and roller delivering maximum Renold performance
- Plates and rollers shot peened to our exact specifications
- Wear and fatigue resistance that delivers maximum working life
- Lubrication that improves wear performance



Renold Sovereign

Some applications demand a specific solution. Trying to run a standard specification chain in a harsh environment will lead to dramatically reduced working life, possible chain failure and expensive downtime and all this can be avoided by specifying the chain that's designed for the job.

Abrasive environments such as brick and tile manufacture, which are characterised by dust and debris, are perfect examples of applications that demand the inclusion of Renold Sovereign chain. Renold Sovereign includes a particular surface treatment that ensures greatly increased wear resistance.

The chain is able to withstand the effect of dust and debris infiltrating the bearing areas between

pins, bushes and plates, an effect that would quickly grind away a standard specification chain.

Features and benefits:

- Resilient, durable components
- Up to 3 times longer wear life than standard chain in harsh environments
- Up to 4 times longer wear life than low maintenance chain in harsh environments
- Reduced pin wear
- Suitable for high speed or heavy load applications
- Excellent reliability giving reduced maintenance costs
- Ideal for situations of irregular or restricted maintenance



Renold Klik-Top™

Klik-Top™ polymer block chain is quick to install, strong, and will cut costly downtime experienced when using conventional polymer block chain.

Klik-Top™ chain ensures reliability, quality and great value for money.

Ideal for conveying delicate items such as glass, wood and packaging.

You can have confidence in Klik-Top™ chain.

Features and benefits:

- New synthetic clip with special profile
- Protecting your goods from damage and the base chain from wear
- Rapidly exchangeable clip using Klik-Top™ mechanism
- Increase your productivity by reducing downtime
- 08B-1, 12B-1 and 16B-1 base chains available
- Maintenance free and stainless base chains available
- Different coloured clip marks the position of a connecting link

