RENOLD JEFFREY

Maximum performance. Maximum value.
There is no equal.

RENOLD Synergy®

Renold Synergy®

Simply the best

Renold set out to create the finest roller chain available today and succeeded. Synergy is the only true high-performance roller chain in the market. Engineers around the world endorse the wear resistance, fatigue resistance, and exceptional working life of this remarkable chain technology.

Synergy achieves its goals

Synergy was created to meet specific goals set by Renold engineers and our customers.

- Meet and exceed the minimum ISO606 standard requirements for fatigue by at least 60%
- Achieve wear performance significantly better than the best competition
- Be user friendly — easy to handle, assemble, and use

Renold Synergy should be lubricated as normal when in operation. The low level of lubrication on the chain when it is supplied is simply to make handling easier.

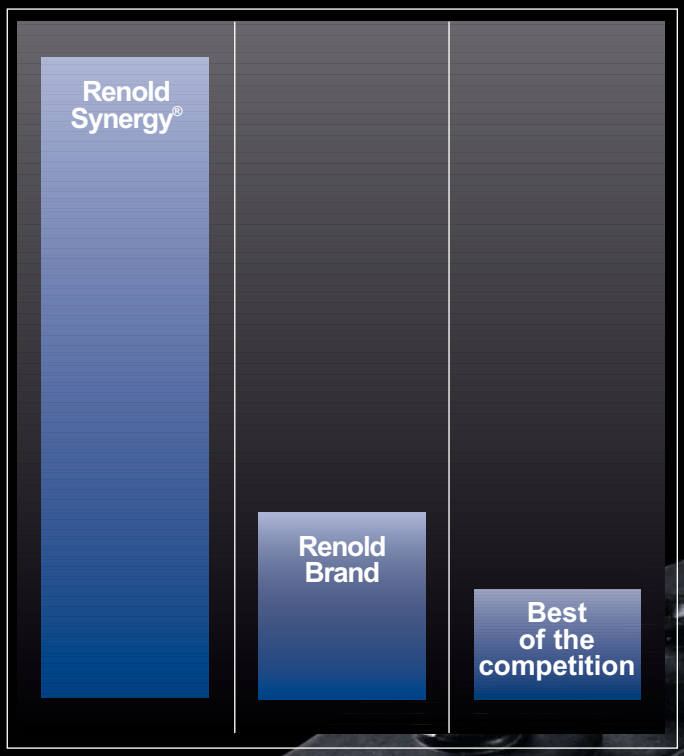
Renold Synergy lasts nearly six times longer than comparable chains

Built to be better

- **Plate Shape** — Wide-waist profile for improved stress distribution
- **Plate Thickness** — Maximized profile within the constraints of the standard
- **Bushings** — Solid bushings, with improved roundness and strength over curled bushings
- **Extrusion Technology** — Extruded bushings with profiled ends improve bearing area and extend wear life
- **Hole Quality** — Triple punch holing ensures controlled positional location of pin and bushing for even wear
- **Fits** — Optimum interference fits maximize fatigue life
- **Fatigue resistance** — pre-stressed surfaces increase fatigue resistance
- **Wear** — Profiled components and special pin surface coating enhance wear
- **Connecting Link** — Unique in design, allowing for a chain system with no component weaker than another

A new, better definition of wear life

Renold Synergy® lasts nearly six times longer than other brands.



Fit it & forget it

Synergy provides real benefits that add up to time and money savings

Better operation

Easy to handle, assemble, and use

- **Exclusive!** Our unique, end-softened pins cut to length quickly and cleanly using just one tool. Get up and running faster than ever before.
- Synergy® is virtually dry to the touch. The lubricant stays in the chain — requiring no clean up.
- Our platinum-colored connecting links stand out against the black surface plates, so they're easy to identify and remove.
- Synergy® lasts longer and resists greater shock loads, making it the most reliable chain on the market.

Safe and environmentally friendly

- Initial lubricant stays in the chain where it's needed — no contamination and no waste.
- Synergy® is made in factories that fully conform to ISO 14001.
- All chain and packaging is 100% recyclable

Better performance in every detail

Built to perform

Each component of Renold Synergy® is engineered to perfection using cutting-edge design tools such as Finite Element Analysis (FEA). It all adds up to chain performance that exceeds the sum of its parts.

Improved fatigue performance

Plate and connecting link design optimizes stress distribution and fatigue performance. Synergy® performs, on average, 30 percent better than other brands under repeated shock loading and continual heavy loads.

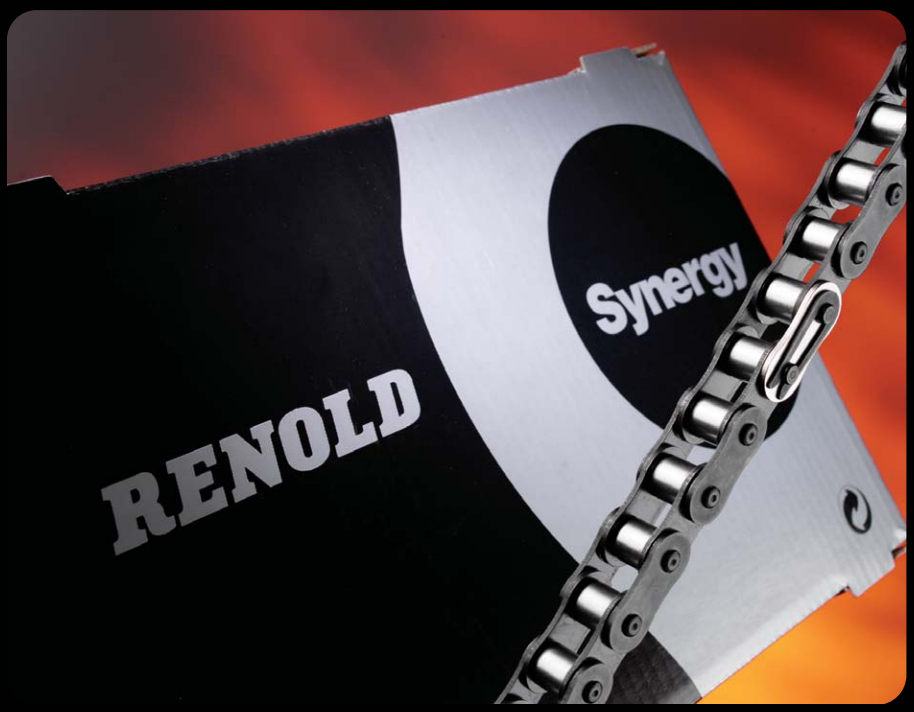
Better wear performance

Independent tests show Renold Synergy® performed almost six times better than the highest quality competitor's chain.

Engineered to perfection

- Optimum fits achieved with finite element analysis (FEA)
- Enhanced interface between components
- Improved resistance to outer plate movement, push and torsional securities up to 20% higher
- Re-profiling of bushing bore to obtain ultimate fit and greater virtual bearing area
- Reduced coefficient of friction between pin and bushing by optimizing surface treatments
- Consistent, better fatigue performance

It all adds up to chain performance that exceeds the sum of its parts.

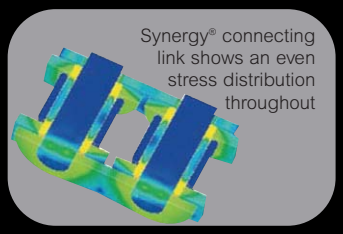


Renold Synergy®

Better performance in the lab and in the field

Link plate features

- Precision blanked hole profile optimizes stress distribution to better endure shock and wear.
- Strict control of steel specifications and heat-treatment methods ensure the strongest possible base materials.
- Triple-punch holing techniques maximizes crack resistance and ensures even wear.
- Special coating resists corrosion and light acids.
- Unique, cold-worked connecting link achieves the same high fatigue performance as the overall chain.



Synergy® connecting link shows an even stress distribution throughout

Easy-to-use, slip-fit connecting links are cold-worked after heat treatment to ensure even stress distribution throughout.

ROLLER

BUSHING

PIN

ACCURATE HOLING TECHNIQUES

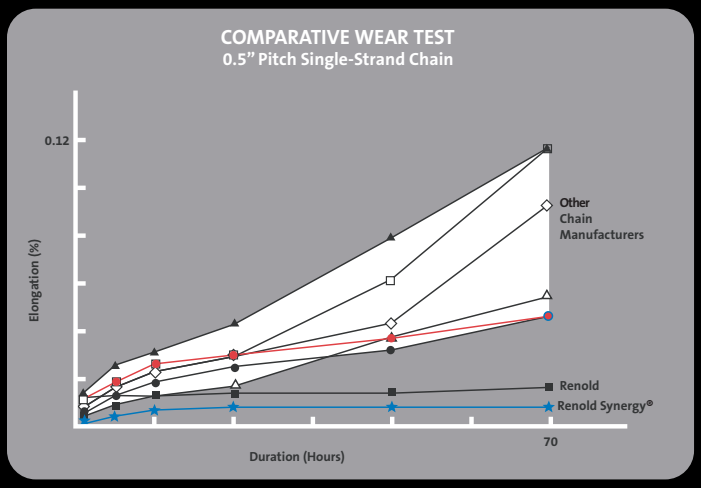
PLATE PROFILE

Pin and bushing features

- Optimal hardness prevents brittleness and reduces wear.
- Unique bushing bore profile maximizes surface contact with pins.
- Three-stage pin surface treatment retains lubrication to extend wear life.
- Exclusive, six-stage cold extrusion process improves concentricity, optimizing resistance to shock loads.

Longer wear performance

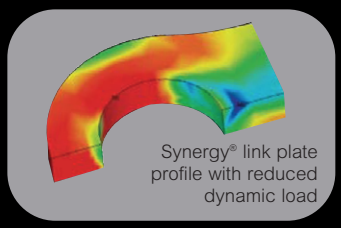
Most chain replacements, when specified correctly, are caused by elongation due to wear between the pin and bushing. Renold Synergy® has a unique pin and bushing design, which extends wear life nearly six times longer than other chains.



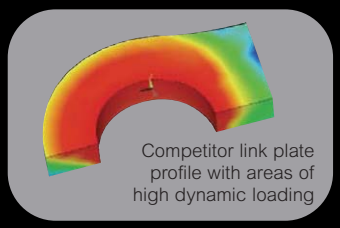
Synergy® distributes stress better for longer life

Synergy® link plates are specially designed to distribute stress more uniformly. Conventional chains develop "hot spots" in the link plates, which can lead to chain failure. Better stress distribution means much longer wear life.

Stress distribution is smoother and lower than on conventional chain plates for higher overall fatigue performance. Stress peaks under dynamic load are shown in red.



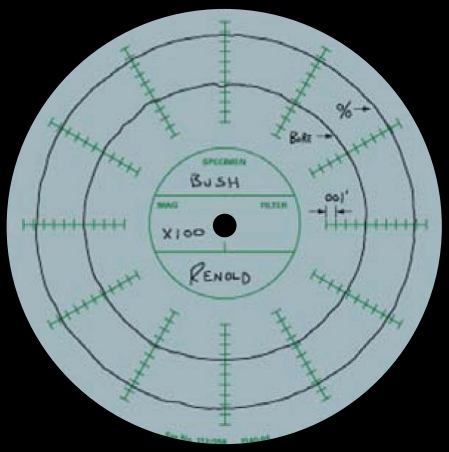
Synergy® link plate profile with reduced dynamic load



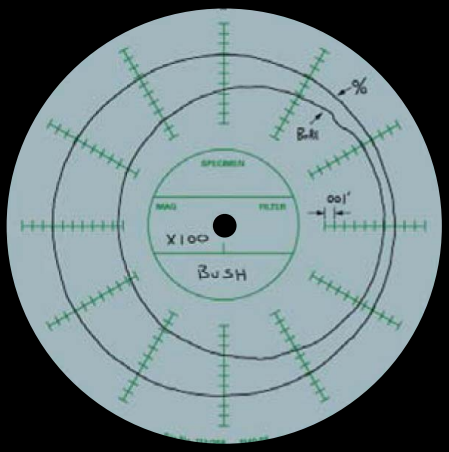
Competitor link plate profile with areas of high dynamic loading

This diagram shows how extrusion technology creates round, concentric bushings on Renold Synergy® chain. The reduced friction coefficient and greater virtual bearing area dramatically extend wear life.

Renold Synergy®

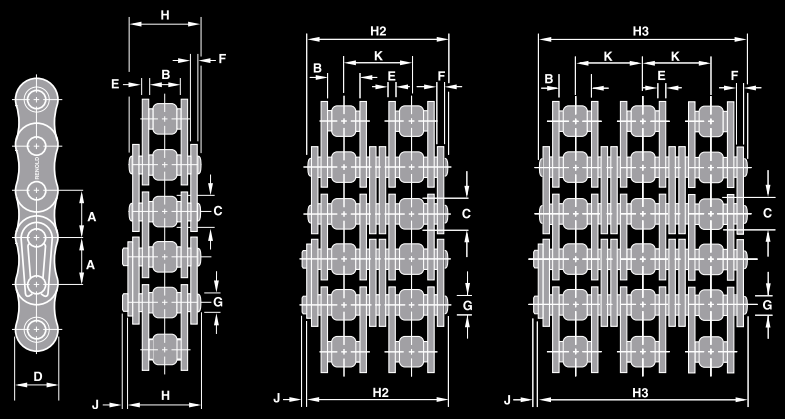


Competitor



You can't buy a better longer-lasting chain

ANSI Chain Dimensions



Synergy® ANSI Roller Chain

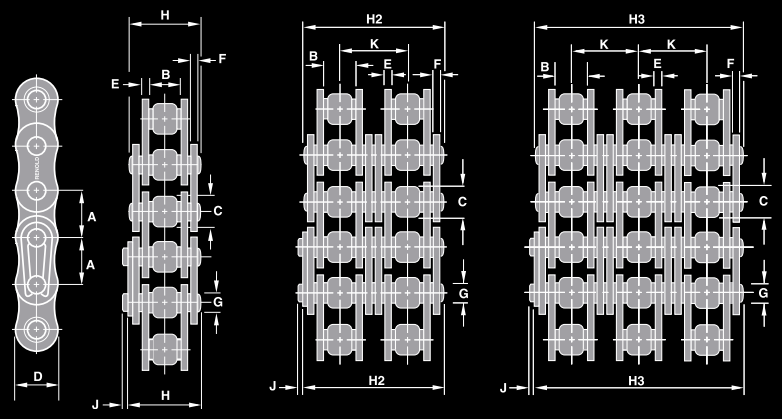
Dimensions are in inches unless otherwise indicated.

Chain No.	Renold No.	Pitch	Inside Width Min	Roller Diam Max	Plate Height Max	Inner Plate Thick Max	Outer Plate Thick Max	Pin Diam Max	Pin Length Max	Conn Link Extra Max	Trans Pitch	Tensile Strength Min	Rated Working Load	Weight
		A	B	C	D	E	F	G	H	J	K	Lbs	Lbs	Lbs/Ft
SINGLE STRAND														
*35SYN	129037	0.375	0.184	0.200	0.356	0.049	0.049	0.141	0.472	0.043	—	1,760	480	0.24
40SYN	119047	0.500	0.309	0.312	0.475	0.061	0.061	0.157	0.646	0.055	—	3,125	810	0.40
50SYN	119057	0.625	0.370	0.400	0.594	0.080	0.080	0.200	0.803	0.043	—	4,880	1,400	0.67
60SYN	119067	0.750	0.495	0.469	0.713	0.094	0.094	0.235	0.996	0.043	—	7,030	1,950	0.99
80SYN	119087	1.000	0.620	0.625	0.950	0.128	0.128	0.313	1.287	0.118	—	12,500	3,300	1.88
100SYN	119107	1.250	0.744	0.750	1.188	0.160	0.160	0.376	1.563	0.165	—	19,530	5,060	2.82
120SYN	119127	1.500	0.993	0.875	1.425	0.189	0.189	0.437	1.941	0.209	—	28,125	6,800	3.83
140SYN	119147	1.750	0.993	1.000	1.663	0.221	0.221	0.500	2.083	0.205	—	38,280	9,000	5.24
160SYN	119167	2.000	1.242	1.125	1.900	0.250	0.250	0.563	2.484	0.256	—	50,000	11,900	6.99
DOUBLE STRAND														
*35-2SYN	125037	0.375	0.184	0.200	0.356	0.049	0.049	0.141	0.874	0.043	0.399	3,520	810	0.47
40-2SYN	115047	0.500	0.309	0.312	0.475	0.061	0.061	0.157	1.213	0.055	0.566	6,250	1,370	0.81
50-2SYN	115057	0.625	0.370	0.400	0.594	0.080	0.080	0.200	1.512	0.043	0.713	9,760	2,380	1.41
60-2SYN	115067	0.750	0.495	0.469	0.713	0.094	0.094	0.235	1.894	0.043	0.897	14,060	3,315	2.05
80-2SYN	115087	1.000	0.620	0.625	0.950	0.128	0.128	0.313	2.437	0.118	1.153	25,000	5,610	3.70
100-2SYN	115107	1.250	0.744	0.750	1.188	0.160	0.160	0.376	2.968	0.165	1.408	39,060	8,600	5.64
120-2SYN	115127	1.500	0.993	0.875	1.425	0.189	0.189	0.437	3.728	0.209	1.789	56,250	11,560	7.39
140-2SYN	115147	1.750	0.993	1.000	1.663	0.221	0.221	0.500	4.008	0.205	1.924	76,560	15,300	10.41
160-2SYN	115167	2.000	1.242	1.125	1.900	0.250	0.250	0.563	4.787	0.256	2.305	100,000	20,230	13.84
TRIPLE STRAND														
*35-3SYN	127037	0.375	0.184	0.200	0.356	0.049	0.049	0.141	1.268	0.043	0.399	5,280	1,200	0.70
40-3SYN	117047	0.500	0.309	0.312	0.475	0.061	0.061	0.157	1.776	0.055	0.566	9,375	2,025	1.21
50-3SYN	117057	0.625	0.370	0.400	0.594	0.080	0.080	0.200	2.224	0.043	0.713	14,640	3,500	2.01
60-3SYN	117067	0.750	0.495	0.469	0.713	0.094	0.094	0.235	2.791	0.043	0.897	21,090	4,875	2.97
80-3SYN	117087	1.000	0.620	0.625	0.950	0.128	0.128	0.313	3.591	0.118	1.153	37,500	8,250	5.56
100-3SYN	117107	1.250	0.744	0.750	1.188	0.160	0.160	0.376	4.381	0.165	1.408	58,590	12,650	8.44
120-3SYN	117127	1.500	0.993	0.875	1.425	0.189	0.189	0.437	5.524	0.209	1.789	84,375	17,000	11.19
140-3SYN	117147	1.750	0.993	1.000	1.663	0.221	0.221	0.500	5.938	0.205	1.924	114,840	22,500	15.48
160-3SYN	117167	2.000	1.242	1.125	1.900	0.250	0.250	0.563	7.100	0.256	2.305	150,000	29,750	20.77

+Renold Synergy far exceeds the ISO606 minimum tensile strength requirement, but Renold Jeffrey does not consider this to be a useful indicator of the key chain performance areas: wear and fatigue.

* Rollerless Chain

British Standard Chain Dimensions



Synergy® British Standard Roller Chain

Dimensions are in inches unless otherwise indicated.

Chain No.	Renold No.	Pitch	Inside Width Min	Roller Diam Max	Plate Height Max	Inner Plate Thick Max	Outer Plate Thick Max	Pin Diam Max	Pin Length Max	Conn Link Extra Max	Trans Pitch	Tensile Strength Min	Rated Working Load	Weight
		A	B	C	D	E	F	G	H	J	K	Lbs	Lbs	Lbs/Ft
SINGLE STRAND														
06BSYN	110038	0.375	0.225	0.250	0.325	0.051	0.041	0.129	0.492	0.051	—	2,001	395	0.26
08BSYN	110046	0.500	0.305	0.335	0.465	0.061	0.061	0.175	0.669	0.059	—	4,002	700	0.47
10BSYN	110056	0.625	0.380	0.400	0.580	0.061	0.061	0.200	0.740	0.051	—	4,991	1,100	0.62
12BSYN	110066	0.750	0.460	0.475	0.635	0.071	0.071	0.225	0.862	0.043	—	6,497	1,575	0.81
16BSYN	110088	1.000	0.670	0.625	0.830	0.162	0.122	0.326	1.374	0.087	—	13,489	2,810	1.88
20BSYN	110106	1.250	0.770	0.750	1.040	0.182	0.142	0.401	1.567	0.106	—	21,357	4,370	2.59
24BSYN	110127	1.500	1.000	1.000	1.315	0.240	0.200	0.576	2.071	0.268	—	35,970	6,130	5.01
DOUBLE STRAND														
06B-2SYN	114038	0.375	0.225	0.250	0.325	0.051	0.041	0.129	0.906	0.051	0.403	3,800	670	0.50
08B-2SYN	114046	0.500	0.305	0.335	0.465	0.061	0.061	0.175	1.197	0.059	0.548	6,992	1,185	0.93
10B-2SYN	114056	0.625	0.380	0.400	0.580	0.061	0.061	0.200	1.394	0.051	0.653	10,004	1,870	1.21
12B-2SYN	114066	0.750	0.460	0.475	0.635	0.071	0.071	0.225	1.630	0.043	0.766	12,994	2,680	1.61
16B-2SYN	114088	1.000	0.670	0.625	0.830	0.162	0.122	0.326	2.630	0.087	1.255	23,830	4,780	3.69
20B-2SYN	114106	1.250	0.770	0.750	1.040	0.182	0.142	0.401	3.020	0.106	1.435	38,218	7,430	5.23
24B-2SYN	114127	1.500	1.000	1.000	1.315	0.240	0.200	0.576	3.988	0.268	1.904	62,946	10,270	9.92
TRIPLE STRAND														
06B-3SYN	116038	0.375	0.225	0.250	0.325	0.051	0.041	0.129	1.312	0.051	0.403	5,598	1,000	0.74
08B-3SYN	116046	0.500	0.305	0.335	0.465	0.061	0.061	0.175	1.745	0.059	0.548	10,004	1,750	1.38
10B-3SYN	116056	0.625	0.380	0.400	0.580	0.061	0.061	0.200	2.049	0.051	0.653	14,995	2,750	1.70
12B-3SYN	116066	0.750	0.460	0.475	0.635	0.071	0.071	0.225	2.399	0.043	0.766	19,491	3,930	2.41
16B-3SYN	116088	1.000	0.670	0.625	0.830	0.162	0.122	0.326	3.885	0.087	1.255	35,969	7,025	5.46
20B-3SYN	116106	1.250	0.770	0.750	1.040	0.182	0.142	0.401	4.460	0.106	1.435	56,202	10,925	7.81
24B-3SYN	116127	1.500	1.000	1.000	1.315	0.240	0.200	0.576	5.898	0.268	1.904	95,544	15,100	14.91

+ Renold Synergy far exceeds the ISO606 minimum tensile strength requirement, but Renold Jeffrey does not consider this to be a useful indicator of the key chain performance areas: wear and fatigue.

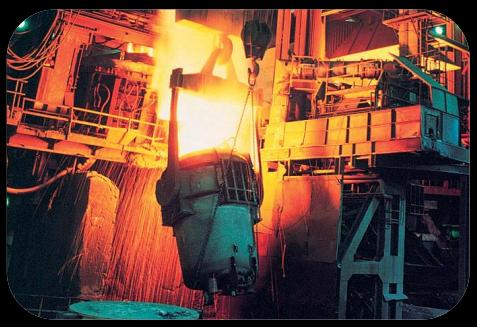
* Rollerless Chain

Improving performance in industries around the world

Food & Bakery
An Australian bakery installed Synergy® on all of their chain drives. Their maintenance supervisor said, ***"Our experience to date has been that Renold Synergy® gives a high degree of reliability with fewer breakdowns and less maintenance time… our cost of ownership is greatly reduced."*** One of the largest U.S. food manufacturers called Synergy® ***"exceptional, and the wear life astonishing,"*** in their most demanding dough mixer application.

Packaging
Lubrication is essential to the working life of most chains, but excess can contaminate products. That's why Synergy® is ideal for packaging lines such as cardboard box production. Plymouth Packaging in the U.S.A. found that Synergy® lasts 7 to 8 months in this application, instead of 2 to 3 months like their former chain. The company eliminated at least three downtime cycles and achieved ***"great cost savings."***

Steel
Heavy loads and temperature extremes can cause rapid chain failure in a steel mill. Increased wear life means significant savings especially at these machine lengths. A New Zealand steel producer doubled the working life of their chain drives by replacing three 55-meter lengths with Synergy®. A German casting company found Synergy® lasts up to six times longer in their automated tooling machine.



Sawmill
The severe back-and-forth motion of a bandsaw drive can cause chain to break almost daily. A New Zealand sawmill installed Synergy® and did not have to replace it for two years. In the United States, VKN Hardwoods uses Synergy® to process hardwood timber. Their maintenance manager stated, ***"The amazing thing is that we have increased production on this piece of equipment by 25 percent."***

Textile
Goulburn Wool in Australia uses Synergy® on drives that draw coarse wool through the washing process. Their maintenance supervisor said: ***"I have found Synergy® chain to far outlast any other chain. Its reliability is second to none. I would thoroughly recommend this product, as breakdowns due to chain failure are virtually nonexistent in our applications."***

Tire Manufacturing
Synergy® stands up to heavy weights and high tensile loads. Michelin found that Synergy® lasts up to six times longer than their previous brand in a tire manufacturing application winding rubber-wrapped steel wire into reels.

RENOLD Synergy®

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Renold Synergy® Chain
Simply the best

Our biggest innovation ever in roller chain.

- Longer lasting
- Lower maintenance
- Increased reliability

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Advancing Chain Technology™
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PTDA Member

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