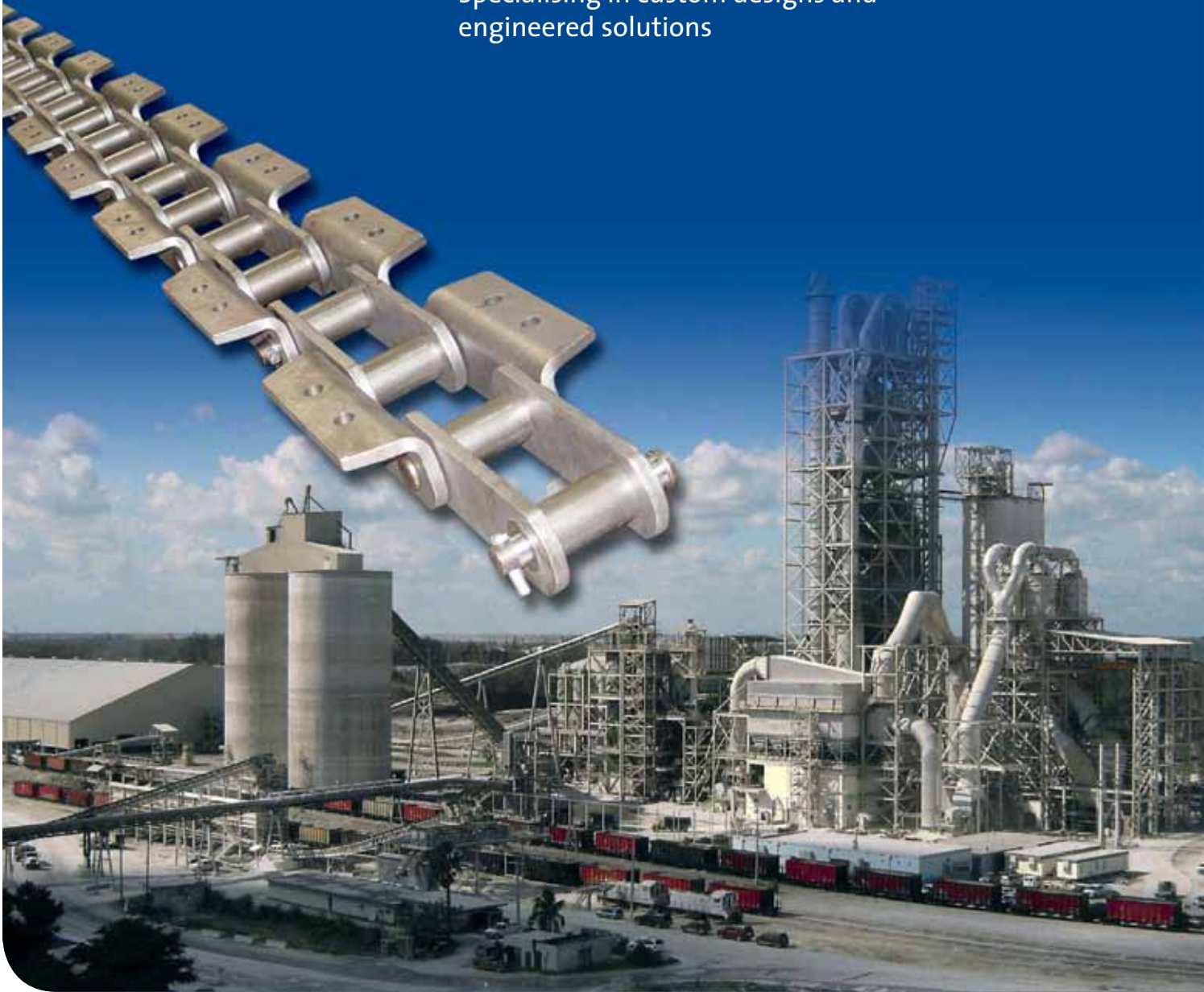


# Cement Mill Chains

■ *Innovation* ■ *Experience* ■ *Commitment*

- Strong, long-lasting chains, pan conveyors, and drag chains for critical applications
- Innovative, problem-solving products, designed and built to perform and last
- Specialising in custom designs and engineered solutions



**RENOLD**

*Superior Chain Technology*

[www.renold.com.au](http://www.renold.com.au)





## Table of Contents

The Renold Story	4
Renold Chain Features	5
Solutions for Cement Mills	6
Cement Manufacturing Process	7
Bucket Elevator Chains	8-9
Hard Face Welded Steel Drag Chains	10
Apron and Deep Pan Conveyors	11
Stacker/Reclaimer Chains	12
Heavy Duty Sprockets & Traction Wheels	13
Supporting Products	
- Gears & Couplings	14
- Chain Wear Monitor	15

### Legend

1. Limestone Portal Reclaimer
2. Limestone Bridge Reclaimer
3. Cement Mill
4. Apron Feeder
5. Limestone Radial Stacker Reclaimer
6. Bucket Elevator



### The Renold Story

Renold is the oldest name in industrial chain. In fact Renold has been manufacturing high-quality chain since 1864. You can't find better chain than Renold. We understand the challenges of bulk handling, and we know how to meet your requirements.

Today's cement mills require high-performance chains to keep running at maximum capacity. High shock loads, dust and debris, conveying hot material, conveying up steep inclines, lifting heavy loads... These are demanding conditions that require innovative solutions. Renold delivers.



### Manufactured to Last

Pins and bushings are made from alloy steel and deep case hardened for maximum wear life and toughness. Pins are through hardened and induction hardened for superior strength. Pins and bushings are centerless ground to accurately control tolerance and surface finish. Plates are designed to eliminate stress risers in plate holes — resulting in maximised chain life.



## Renold Chain Features

### Better Fatigue Strength

All chain parts are designed to provide maximum fatigue life. Plates are through hardened for maximum toughness. We use high-quality alloy steels or the materials your application requires. Every part is manufactured to the tightest tolerances for higher quality. Our heat treatment allows us to better control the process and to deliver longer-lasting chains. We build the highest quality into every part.

### Rapid Response

Renold maintains large inventories of chains and parts so we can respond to your needs. We can also quickly develop custom solutions, when required — in fact, they're our specialty. Count on Renold to deliver the chains you need to keep your operation running at peak capacity.



### Engineering Expertise

Our engineers understand the unique requirements of cement mills. They have years of experience in specifying the right materials, sizes, and types of chains and buckets for a variety of operations. They have a thorough knowledge of metallurgy, so they can help you select the right solution for your operation.

Retrofits of existing OEM designs, either of metric or imperial dimensions, are our specialty. We also specialise in custom designs and engineered solutions for customer-specific applications.



**Solutions for Cement Mills**



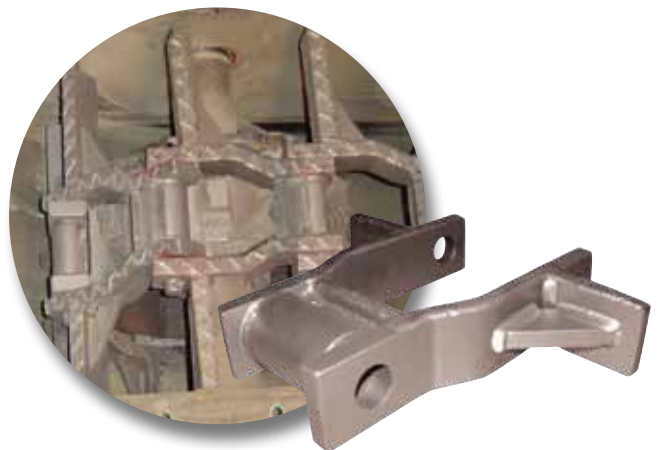
**Super Capacity Bucket Elevator Chain**



**Mill Duty Bucket Elevator Chain**



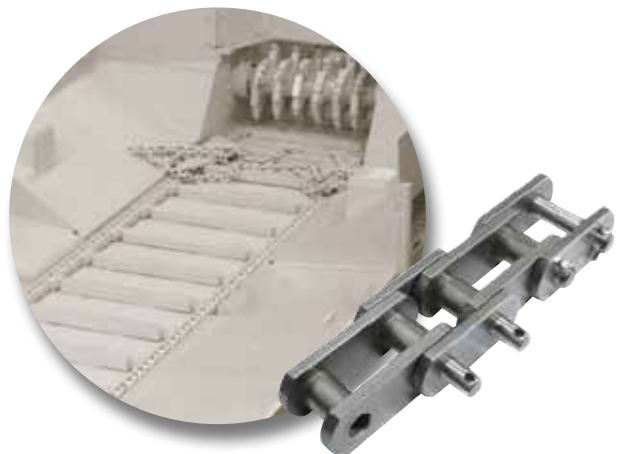
**Reclaim Conveyor Chain**



**Hot Clinker Drag Chain**



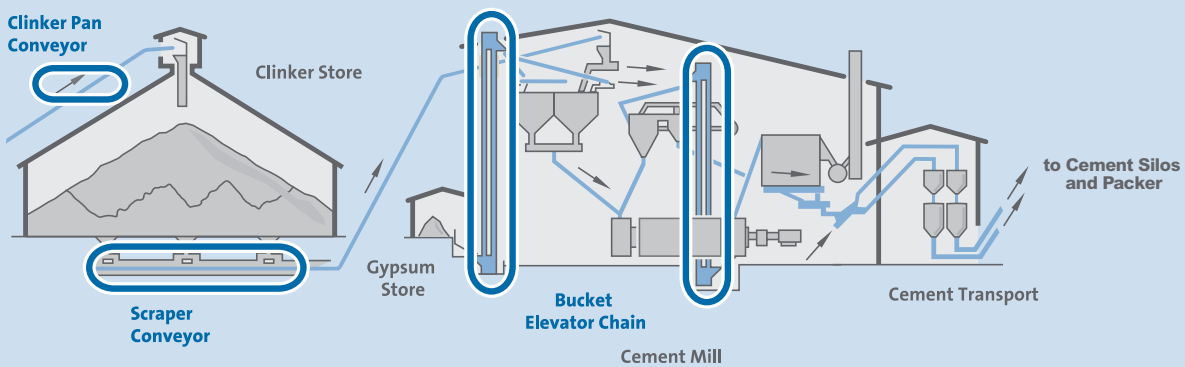
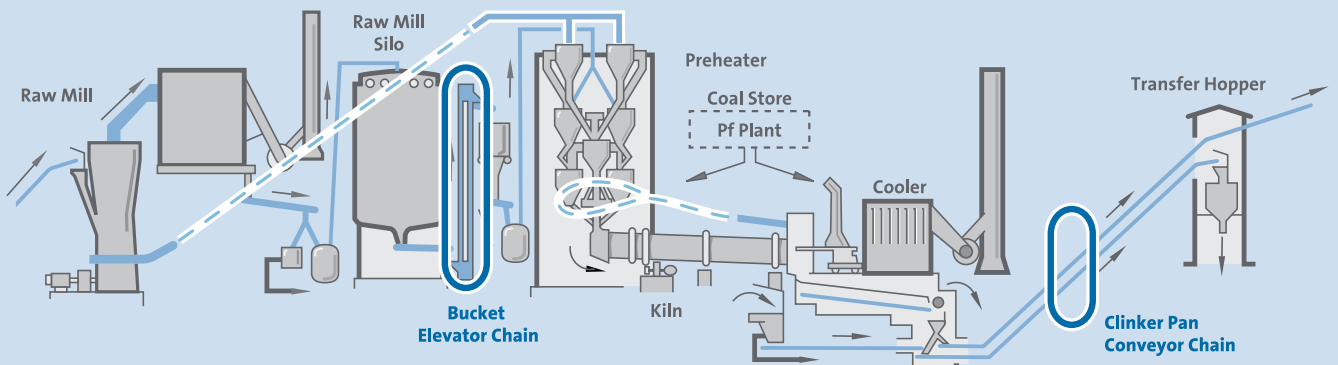
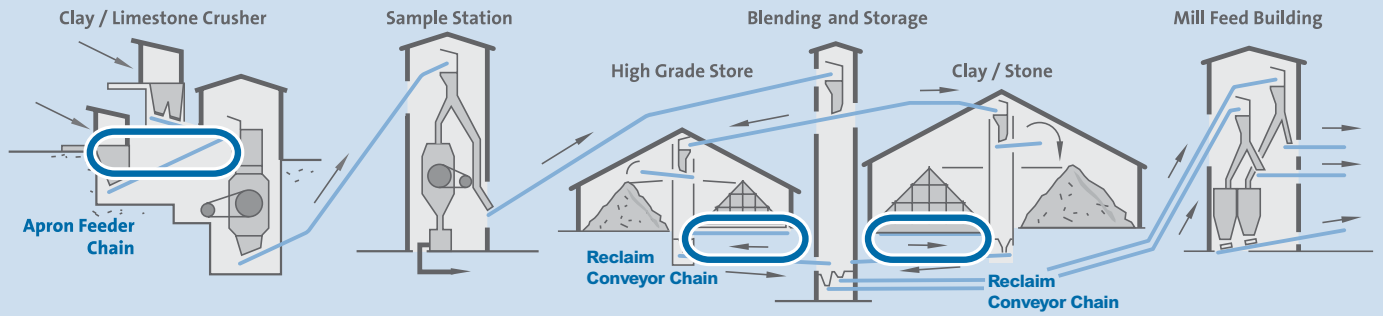
**Deep Pan Conveyor Chain**



**Breaker Feeder Chain**

### Cement Manufacturing Process

Renold heavy-duty chains, aprons, buckets, and sprockets keep cement mills running longer. Count on Renold for the longest-lasting and most reliable products for your facility.



**Bucket Elevator Chains**

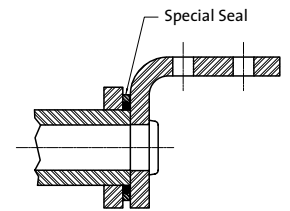
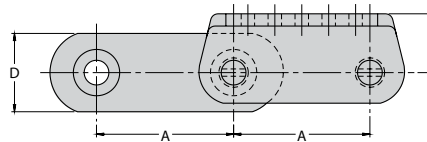
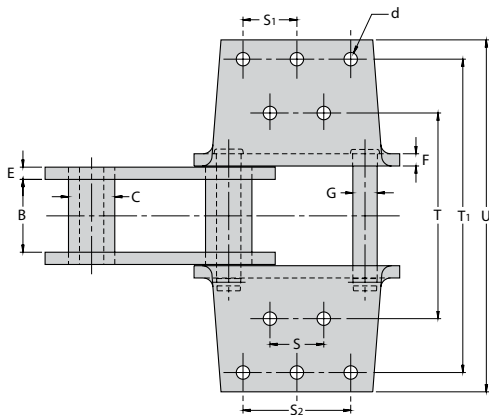
Renold Bucket Elevator Chains are built to last. Pins and bushings are made from high-quality alloy steel for maximum wear life and toughness. Pins are made from alloy steel and induction hardened for maximum wear resistance. Pins and bushings are centerless ground to improve wear life and to provide ideal fits between mating parts. Hardened alloy-steel sidebars provide optimal strength and toughness. Exceptional plate hole quality and full round pin-and-bushing design provide optimal press fits and maximum fatigue resistance.



**Sealed Joint Chains**

**Solution-oriented design innovation**

Renold Sealed Joint Chains lock in lube and lock out dirt and debris. Available in nearly all of our elevator chains, this innovative solution dramatically increases wear life, reducing production downtime and maintenance costs.



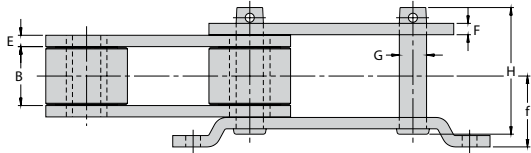
Dimensions are in inches unless otherwise indicated.

Chain No.	Pitch	Inside Width	Knuckle Bushing Dia.	Sidebar		Pin Dia.	T	T <sub>1</sub>	U	d	h	s	S <sub>1</sub>	S <sub>2</sub>	Attachment		Rated Working Load	Ultimate Strength
				Width	Thick										Type	No. Holes		
6956-PB	6.00	3.00	1.750	3.00	0.500	1.000	7.250	—	9.56	0.688	1.875	2.50	—	—	K-24	4	16,000	144,500
6867-R	6.00	3.00	1.750	3.25	0.500	1.000	7.000	12.00	14.00	0.563	2.500	3.50	—	3.50	K-44	8	14,000	170,000
6866-R	6.00	2.50	2.375	3.00	0.500	1.250	6.313	—	9.81	0.688	2.375	2.25	—	—	K-2	4	17,400	167,000
6869-R	6.00	3.72	2.375	4.00	0.625	1.250	9.000	13.00	15.00	0.688	3.000	2.75	—	4.50	K-44	8	22,000	267,000
6969-R	6.00	3.72	2.500	4.00	0.625	1.500	9.000	13.00	15.00	0.688	3.000	2.75	—	4.50	K-44	8	30,000	275,000
6864-R	7.00	3.72	2.375	4.00	0.625	1.250	9.000	13.00	15.00	0.688	3.000	3.75	2.75	5.50	K-443	10	22,000	267,000
6684	7.00	3.75	2.500	4.00	0.625	1.375	9.000	13.00	15.00	0.688	3.000	3.75	2.75	5.50	K-443 K-44	10	24,000	270,000
6875-R	7.00	3.75	2.500	4.00	0.625	1.500	9.000	13.00	15.00	0.688	3.000	3.75	2.75	5.50	K-443 K-44	10	30,000	275,000
6874	7.00	4.00	2.750	4.50	0.750 0.625	1.750	9.500	13.50	15.50	0.688	3.125	3.75	2.75	5.50	K-443 K-44	10	38,000	420,000

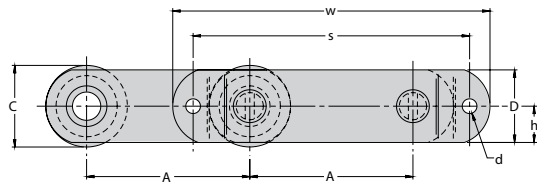


**Super Capacity Bucket Elevator Chains**

Super Capacity Bucket Elevator Chains are designed and engineered for maximum fatigue resistance and wear life — the features you need to keep your mill running continuously. Component parts are carefully crafted to provide long-lasting operation. Pins and bushings are alloy steel and case hardened for ultimate wear resistance. Sidebars are also hardened to provide increased chain strength.



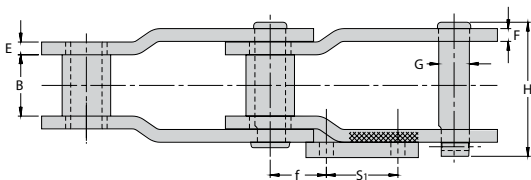
**G-100**



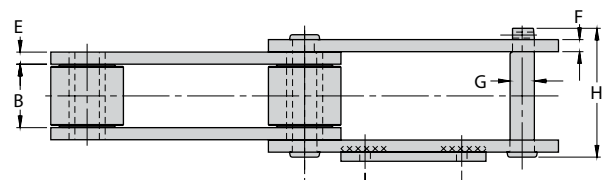
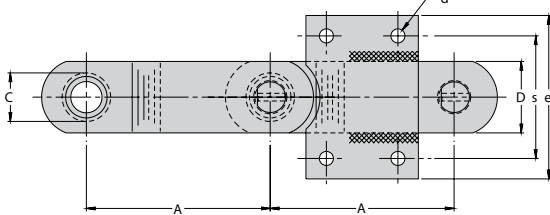
Dimensions are in inches unless otherwise indicated.

Chain No.	Pitch	Inside Width	Roller Dia.	Sidebar		Pin Dia.	H	d	f	h	s	w	Rated Working Load	Ultimate Strength
				Width	Thick									
	A	B	C	D	E/F	G							Lbs.	Lbs.
3252-PR	9.00	2.63	3.000	2.50	0.500	1.000	5.422	0.688	3.359	1.25	14.00	16.50	12,650	116,000
4035-PB	9.00	3.16	3.500	3.00	0.500	1.125	6.016	0.688	3.593	1.50	14.00	16.00	16,400	131,700
4065	9.00	3.06	4.250	3.50	0.625	1.250	6.484	0.688	3.938	1.75	14.00	16.50	19,000	215,000
4037-PB	9.00	3.25	4.500	4.00	0.625	1.500	7.000	0.810	3.910	2.00	15.25	17.50	27,000	253,000

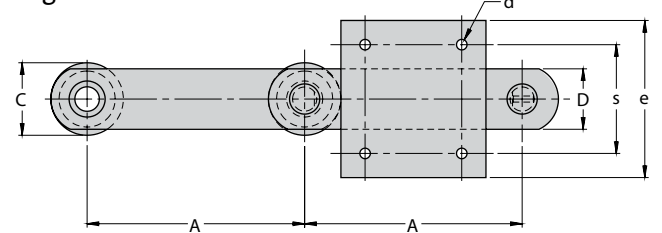
**G-9**



Offset Sidebar



Straight Sidebar



Dimensions are in inches unless otherwise indicated.

Chain No.	Pitch	Inside Width	Roller/Bushing Dia.	Sidebar		Pin Dia.	H	d	e	f	s	s1	Rated Working Load	Ultimate Strength
				Width	Thick									
	A	B	C	D	E/F	G							Lbs.	Lbs.
6859-R*	9.00	2.50	1.750	2.50	0.500	1.000	5.390	0.66	6.00	3.250	4.00	3.50	14,000	130,000
6881-AR*	9.00	3.00	2.380	3.50	0.625	1.500	6.563	0.66	8.00	2.750	5.50	3.50	24,500	260,000
6889-PB*	9.00	2.75	2.750	4.00	0.625	1.623	6.188	0.69	7.50	2.500	6.00	4.00	26,000	260,000
3252-PR	9.00	2.63	3.000	2.50	0.500	1.000	5.422	0.44	6.50	2.500	4.50	4.00	12,650	116,000
4065	9.00	3.06	4.250	3.50	0.630	1.250	6.484	0.69	8.00	2.750	6.00	3.50	19,000	215,000

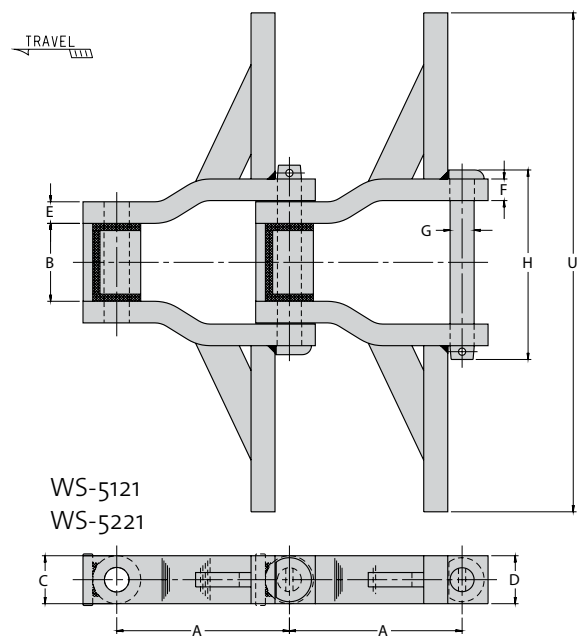
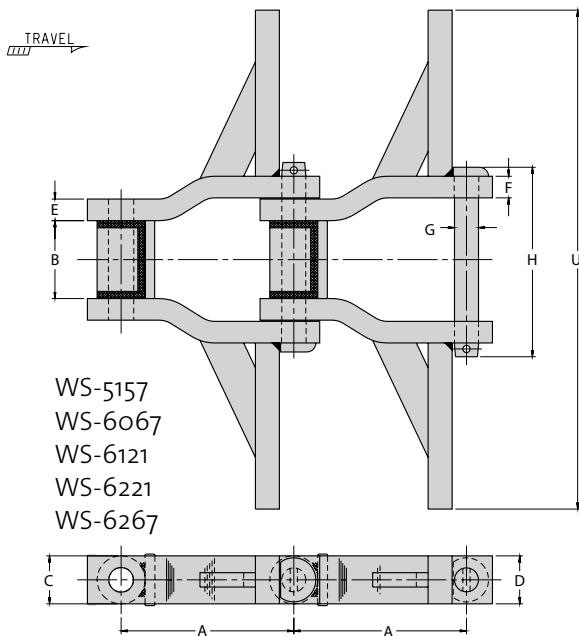
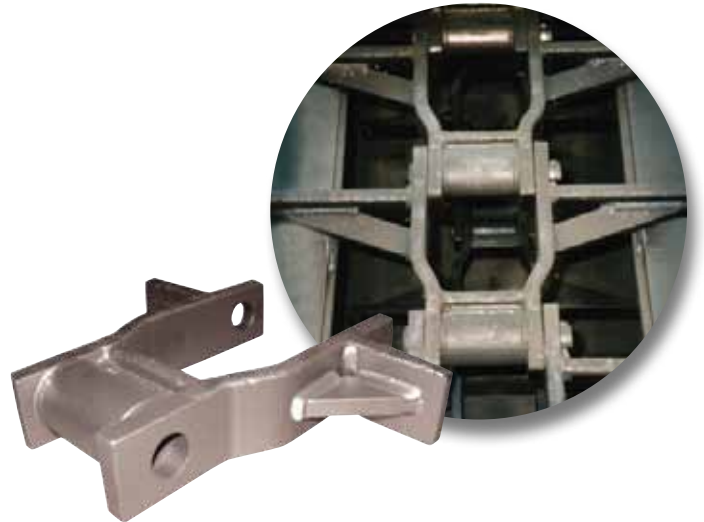
\*Denotes offset sidebar and stud bushing

**Hard Face Welded Steel Drag Chains**

Renold Hard Face Welded Steel Drag Chains are designed to last. Every chain has induction-hardened, press-fit pins and positive locking to allow greater pin loading and to prevent pin movement at elevated temperatures. And all chain parts are heat treated to add toughness, durability, and longer wear life.

HF chains have hard-face sidebars, faceplates, and wings on both sides. This is recommended for the demanding conditions at cement plants. However, chains can be supplied without hard facing, if requested.

H and HHF chains can run in material temperatures up to 1,000° F.



Dimensions are in inches unless otherwise indicated.

Chain No.	Base Chain Weight	Pitch	Inside Width	Barrel	Sidebar		Pin Dia.	H	U	Rated Working Load	Ultimate Strength
					Width	Thick					
	Lbs./Ft.	A	B	C	D	E/F	G			Lbs.	Lbs.
WS5157-H	23	6.05	3.000	1.75	2.50	0.625	1.125	6.875	8-21	18,200	180,000
WS6067-HHF	27	9.00	3.625	2.50	2.50	0.750	1.250	8.018	10-24	24,300	230,000
WS6267-HHF	27	9.00	3.630	2.50	2.50	0.750	1.375	8.062	10-20	26,700	210,000
WS5121-HHF	35	9.00	3.630	2.50	2.50	1.125	1.250	9.873	10-30	27,600	275,000
WS5221-HHF	36	9.00	3.630	2.50	2.50	1.125	1.375	9.813	10-30	30,300	305,000
WS6121-HHF	36	9.00	3.630	2.50	2.50	1.125	1.250	9.875	10-30	27,600	275,000
WS6221-HHF	36	9.00	3.630	2.50	2.50	1.125	1.375	9.813	10-30	30,300	305,000

### Apron and Deep Pan Conveyors

Renold manufactures the widest variety of Apron, Deep Pan, and Feeder Conveyors for bulk handling in the industry. Carefully crafted to the highest tolerances in alloy or carbon steel, we have the custom solution for your specific conveying needs.



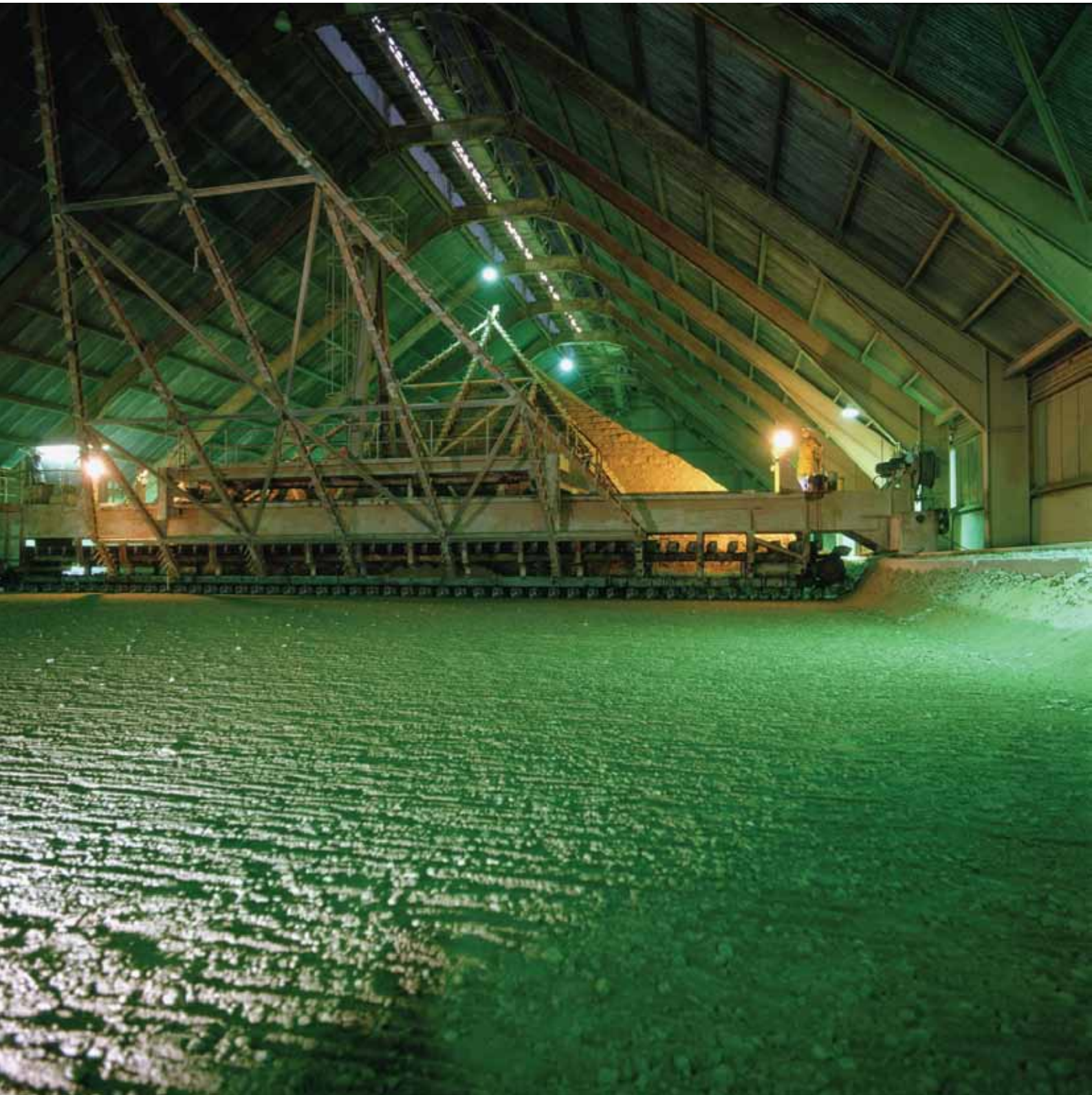
### Computer-Aided Design

Renold utilises the latest technology in CAD and solids modeling to rapidly design and prototype new solutions.



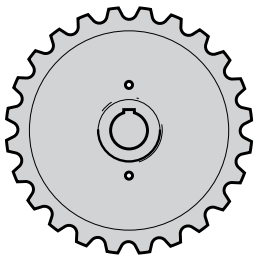
### Stacker/Reclaimer Chains

Renold manufactures a wide variety of Stacker/Reclaimer Chains. These chains are designed and built to increase longevity and wear life for your system.

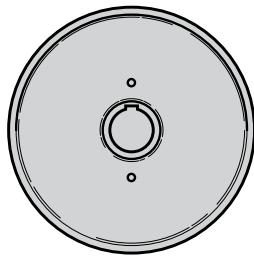


### Heavy-Duty Sprockets and Traction Wheels

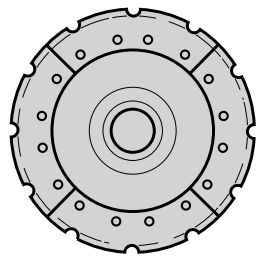
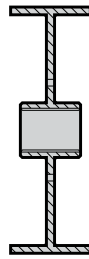
Renold replaceable sprockets and traction wheels are specially designed for the realities of high-stress, heavy-duty service. All sprockets are steel-carved and flame-hardened for long service life. Worn tooth and rim sections are easier to replace, reducing expensive downtime and simplifying maintenance.



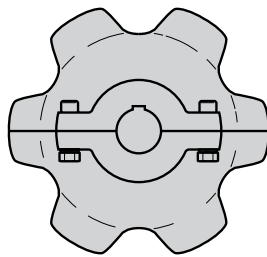
Solid Sprocket



Traction Wheel



Segmental Sprocket



Split Sprocket



### Top-Quality Buckets

Renold provides many types of buckets for a variety of applications — from dual-strand continuous discharge to mill-duty elevators. Available in cast iron or fabricated steel. The buckets can be mounted to the chain at the factory using nuts and bolts or special riveted-type fasteners.



**Supporting Products - Gears and Couplings**

**Renold Provides:**

- Component supply and fully integrated drive packages
- Broad range of high quality products
- ISO 9001 Quality System Certification
- Design and selection of drives and components
- Certified Disc Brake Repair Facility
- Comprehensive Stocks
- Gearbox Repairs
- Assembly and Repair Service in Melbourne

**TLH: Torque Limiter Holdback**

- Designed to protect against conveyor belt wind-up
- Suited to overland conveyors
- Protects the Renold Holdback from overload
- Enables continuous operation of the conveyor
- Design is adaptable to suit conveyor requirements



**GSM RX Helical & Bevel Helical Reducers**

- Helical and Bevel/Helical Units available in 14 sizes up to 1000kW
- Heavy duty design for high torque applications
- Solid and Hollow Outputs
- Shrink Disc Option
- Internal Holdback
- Labyrinth and Taconite Sealing Options

**Renold & Ajax Gear Couplings**

- Single and Double Engagement Assemblies
- Standard and Heavy Duty Series types up to 60,000kW capacity
- AGMA Standard, therefore interchangeable and cost effective
- O'Ring and Metal Sealing Options
- Crowned and Barreled Teeth
- Tooth Tip Piloting Available
- Standard Misalignment 1.5° per gear mesh
- High Misalignment Versions Available fl 6° per gear mesh
- Custom Materials and Heat Treatment



**Renold ePM Reducers**

- Available in three versions:
  - Single Worm
  - Helical Worm
  - Helical-Bevel-Helical
- Ratios to 307:1
- Hollow or Solid Output Shafts
- Holdbacks can be fitted to Worm Gear Versions
- Drywell available for Vertical Mount

**Renold SMX Shaft Mount Helical**

- Standard Parallel Keyed Hollow Output
- Reducing Bushes to suit Shaft
- Taper Bore Options allow easy removal for repair
- Sprag Clutch Backstop available to prevent drive reversal
- Interchangeable with Fenner SMSR

**Hitec PM & RB Couplings**

- Shaft to Shaft and Flywheel Assembly
- Industrial and Heavy Duty Applications
- Failsafe design with no backlash
- Torsionally resilient to absorb shock
- Torsional Vibration Analysis Report Service



**Renold Sprag Clutches & Holdback**

- Torque Limiter Holdback ("TLH")
- Anti-Runback Clutch used as Holdback
- Indexing and Over-Running Versions
- Direct Mount Versions for Internal Gearbox Fitment
- No backlash, giving positive action
- Interchangeable with Formsprag, Morse, Tsubaki eg: on inclined belt conveyors
- Integral Flexible Coupling Option Available

**Planetary Gearboxes & Wheel Hubs**

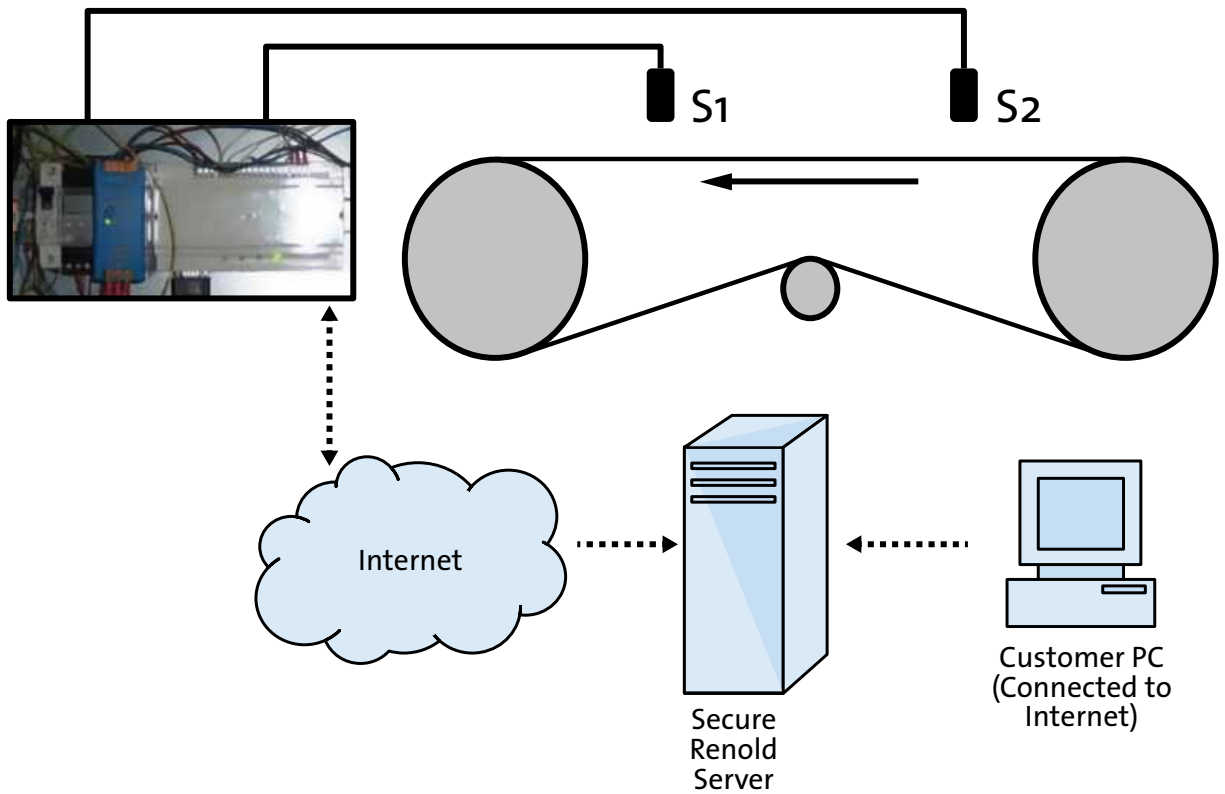
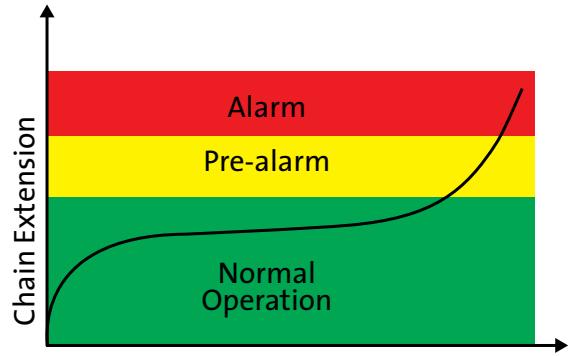
- Gear torque range: 1000Nm to 3,000,000Nm
- Inline and right angle design with many mounting options
- Keyed and Splined Output Shafts
- Hollow Output with Shrink Disc
- Input Flanges to suit Hydraulic and Electric Motors
- Torque Sensing Assembled for Thickner Drives

**Gearbox Repair Service**

- All designs and makes catered for
- Purpose built workshop
- Test Facilities and Spray Booth
- Extensive experience

**Supporting Products - Chain Wear Monitor**

- Continuous monitoring chain length
- Monitor up to 2 chains, differential wear
- Chain monitored in motion, zero contact
- Digital alarms; Pre-alarm; Alarm
- GSM Connectivity



## Cement Mill Chains and Components from Renold

The highest standards for reliability and innovation.

- High-quality chains
- Widest range of products in the industry
- Strong, long-lasting and dependable
- Powerful solutions for your operation

### Sales Branches & Stock Depots

#### AUSTRALIA

##### Melbourne

508-520 Wellington Rd,  
Mulgrave, VIC 3170

(03) 9262 3355  
melsales@renold.com.au

##### Tasmania

GPO Box 1275,  
Hobart, TAS 7001

(03) 9262 3355  
melsales@renold.com.au

##### Sydney

Unit 11, 19 Aero Rd,  
Ingleburn, NSW 2565

(02) 9618 7984  
nswsales@renold.com.au

##### Wollongong

PO Box 2526,  
Unanderra, NSW 2565

(02) 4256 4110  
nswsales@renold.com.au

##### Newcastle

Factory 2, 12 George Rd,  
Salamander Bay, NSW 2317

(02) 4969 5944  
nswsales@renold.com.au

##### Brisbane

Unit 10, 31 Boyland Ave,  
Coopers Plains, QLD 4108

(07) 3275 2155  
brisales@renold.com.au

##### Townsville

Shop B, 247 Ingham Rd,  
Garbutt, QLD 4814

(07) 4779 5922  
tvlsales@renold.com.au

##### Adelaide

67 Orsmond St,  
Hindmarsh, SA 5007

(08) 8346 9077  
adlsales@renold.com.au

##### Perth

Unit 2, 127 Grandstand Rd,  
Belmont, WA 6104

(08) 9479 1388  
pthsales@renold.com.au

#### MALAYSIA

Lot 2, Jalan Kecapi 33/2,  
Elite Industrial Park,  
(Off Jalan Bukit Kemuning),  
40400 Shah Alam,  
Selangor Darul Ehsan

+60 (0) 3 5122 7880  
malaysia@renold.com

#### INDONESIA

Jalan Pangeran Jayakarta,  
129 Blok C9 3rd Floor,  
Jakarta Pusat, Indonesia

+62 21 6220 1686  
sales@renold.sg

#### SINGAPORE

63 Hillview Avenue,  
7-13 Lam Soon Industrial Building,  
Singapore 669569

+65 6760 2422  
sales@renold.sg

#### NEW ZEALAND

##### Auckland

594 Rosebank Rd,  
Avondale, Auckland

+09 828 5018  
aksales@renold.co.nz

##### Christchurch

31 Birmingham Dr,  
Christchurch

+03 338 2169  
chsales@renold.co.nz

#### HEAD OFFICE

##### Melbourne

508-520 Wellington Rd,  
Mulgrave, VIC 3170

T: (03) 9262 3333  
F: (03) 9561 8561  
melsmg@renold.com.au

**RENOLD**  
*Superior Chain Technology*

[www.renold.com.au](http://www.renold.com.au)