

RENOLD

sugar

mill chain



RENOLD

harvest the benefit

Sugar chain industry

RENOLD SUGAR CHAIN

Renold have been producing high performance, quality chain for the Sugar Cane and Beet industries for over 80 years.

FUNCTIONS - CANE SUGAR

Renold chains are used on:

- Cane harvesters
- Cane carrier conveyors
- Intermediate carriers
- Boiler house conveyors
- Cane feed tables
- Diffusers
- Bagasse conveyors
- Bagasse rakes

In addition Renold transmission roller chains are used on many drive applications throughout a Sugar Factory.

FUNCTIONS - BEET SUGAR

Renold chains are used on:

- Beet conveyors
- Trash conveyors
- Scald tub / troughs
- Rock catchers
- Cossette conveyors
- Diffusers

KEY FEATURES - CONVEYOR CHAIN

- Chain conforms to all international standards
- Close control of material tolerances ensures excellent resistance to high loadings
- Excellent concentricity and optimum heat treatment contribute to longer life
- Renold unique bush projection maintains precise clearance between plates to improve wear life by minimising retained foreign particles
- Customised heat treatment ensures long wear life combined with superb resistance to shock loading
- Unparalleled pitch accuracy ensures smooth operation and low noise

KEY FEATURES - TRANSMISSION CHAIN

- Renold's unique dimpled rivet provides easy dismantling and connection of chain
- Renold's pioneering high waisted, heat treated sideplates ensure the optimum balance between resistance to shock loading and long wear life
- Resistance to fatigue is further enhanced by customised surface treatment and holing techniques
- Customised heat treatment and surface finishing on bushes and pins help maximise the chain's resistance to the harsh environment of sugar cane and beet processing
- Renold also ensures that the connecting links are subjected to the same vigorous and exacting manufacturing standards as the main body of the chain, thus ensuring the complete system gives true value for money

PRODUCT DESCRIPTION - CONVEYOR CHAIN

- Feed Table and Cane Carrier chains are designed to run within standard machine "envelopes" and thus are largely interchangeable with other chain
- Renold sugar chains are detachable at every point to allow easy replacement of damaged links
- Intermediate cane carrier chains are fitted with stainless pins and bushes as standard to resist corrosion, and with swivel attachments for scrapers
- Bagasse and Boiler House chains are either straight or crank linked to order, and are fitted with swivel attachments for scrapers
- Sprockets are available for all the chains listed and are able to be manufactured with cast, flame or machine cut teeth and can be surface hardened

PRODUCT DESCRIPTION - TRANSMISSION CHAIN

- Manufactured to British Standard or ANSI dimensions
- Available in simplex (1 strand), duplex (2 strands), triplex (3 strands) in British Standard and ANSI and multiplex strands in the ANSI standard up to octuplex (8 strands)
- A range of ANSI standard extra capacity chains are available for areas where drive space is limited
- Adapted transmission chains are produced with attachments for light duty conveying applications
- Transmission chains also available:
 - Nickel plated
 - In Stainless Steel (Renold Coris range)
 - Minimum maintenance (Renold Syno range)
- For heavy duty drive applications, a range of Renold crank link chains (Mark 3) is also available
- Renold long life sprockets are available for all standard chains ex-stock, or are manufactured to order

CHAIN TYPES



Cane carrier chain



Bagasse chain



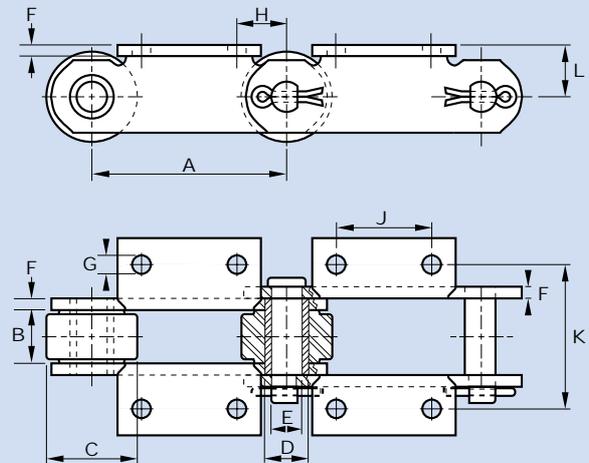
Diffuser chain



Transmission chain

PRODUCTION DESCRIPTION - CANE CARRIER

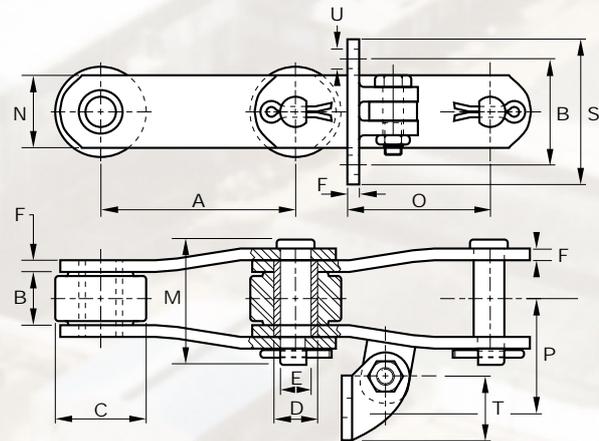
Renold cane carrier chain is interchangeable in all respects, with corresponding quality products supplied to the Cane Sugar Industry. Breaking loads range from 31,800 kgf to 63,500 kgf (70,000-140,000 lbf). Renold's experience, as the originators of the bush roller chain in 1879, and being the first company to incorporate these features for cane carrier applications during the 1920's, makes Renold placed to offer the finest products for carrying cane from the yard to the first mill. Materials, heat treatment and design have been developed to ensure optimum chain life and maximum value for modest cost. Grease gun lubrication through the chain pin is available on request and heat treated stainless steel pins, bushes and rollers can be supplied.



Renold Chain No.	Average breaking load	Pitch	Width between inner plates	Roller dia.	Bush dia.	Connecting pin dia.	Plate thickness	Attach. hole dia.	Distance from pitch point	Hole centres	Hole transverse centres	Platform height	Approx mass (weight)
Metric	Newtons	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	kg/m
R.9060	312000	152.4	38.1	69.85	28.58	19.05	9.53	13.87	38.1	76.2	111.13	41.28	24.7
R.9061	379000	152.4	38.1	69.85	28.58	19.05	9.53	13.87	38.1	76.2	111.13	41.28	25.3
R.1796	445000	152.4	38.1	69.85	31.75	22.23	9.53	13.87	38.1	76.2	111.13	41.28	26.2
R.9063	623000	152.4	38.1	76.20	31.75	23.83	10.31	13.87	38.1	76.2	111.13	44.45	27.5

PRODUCTION DESCRIPTION - BAGASSE STYLE

Using the same round components as the cane carrier range, the bagasse chains provide the capacity to meet the majority of bagasse conveying requirements. They are available with straight plates STYLE A, or cranked plates STYLE B (as illustrated right), EXCEPT R.9063 which is produced in STYLE A only. Although two standard roller sizes are available, other diameters are available on request. Additionally, stainless pins, bushes and rollers can be supplied. The lug and flight attachments are spaced according to individual requirements. All the chain components are replaceable.



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R.9063	623000	152.4	38.1	76.20	31.75	23.83	10.31	13.87	38.1	76.2	111.13	44.45	27.5

Sugar beet industry - products

FUNCTION

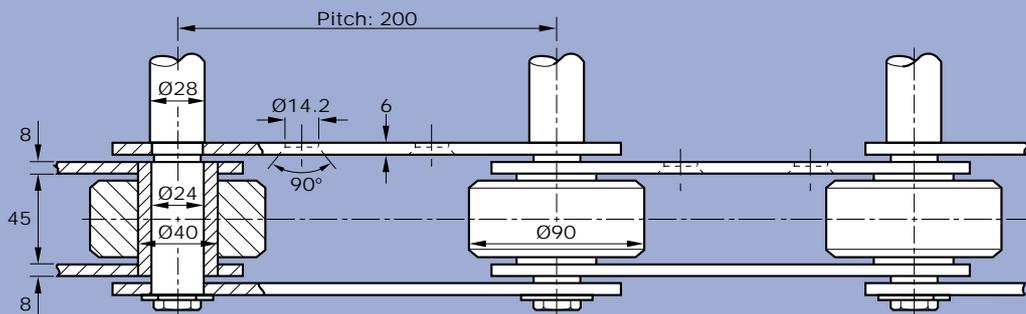
Chains for this industry are specially engineered to suit the conveyor application within each manufacturing process. The pitch size is normally in millimetres and the chains incorporate a number of different attachments, fixing holes and special pins. Some of these chains are run without rollers, whilst others have rollers incorporated into the design, the nature of the application determining where rollers are required. Renold manufacture a wide range of special conveyor chains for this industry. Our technical staff can help with the identification or advise on the interchangeability of a Renold Chain within a sugar plant.

CHAINS FOR THE SUGAR BEET INDUSTRY

Part Number: Consult Renold

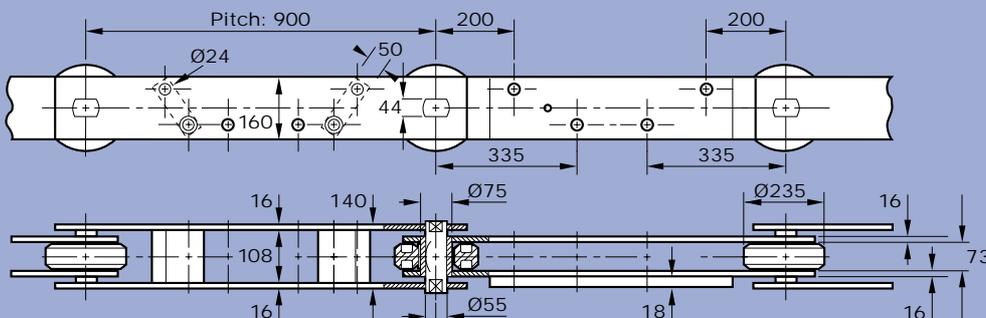
Application: The sugar beet industry, like the sugar cane industry, uses many different chains in the manufacture of crystallised sugar which is used in most households around the world. Chain is found in the reception, washing and diffuser processes within a sugar beet plant. Within these areas there are eight different conveyor chains commonly in use detailed on pages 4 and 5. When visiting a sugar beet plant, drives of different sizes are also found driving these conveyors. Renold have supplied large volumes of 3/4" pitch standard transmission chain, for sugar beet harvesting machine OEMs, following intensive field trials. Due to the arduous nature of the application chains tend to be changed after every season.

BEET CONVEYOR



Reception area: An inclined conveyor which carries the beet from the beet slab to the beet washer. The chain is an integral component within the conveyor.

SUGAR BEET DIFFUSER



Diffuser area: Used on a continuous sugar beet diffuser. Two chains run in parallel connected by perforated steel slats forming a continuous apron.

Sugar industry conveyor sprockets

FEATURES

The normal function of a chain sprocket is not only to drive or be driven by the chain, but also to guide and support it in its intended path. Sprockets can be manufactured from good quality cast iron or fabricated steel.

For arduous duty, it may be necessary to use steel sprockets having a high carbon content.

For extremely arduous duty the tooth flanks should be flame hardened.

There are other materials which may be specified for particular requirements. Stainless steel for example is used in high temperature or corrosive conditions.



The table below gives a guide to the material required.

Normal Conditions	Moderate Shock Loading	Heavy Shock Loading	Abrasion, No Shock Loading	Abrasion and Heavy Shock Loading
Cast Iron or Fabricated Steel	Cast Iron or Fabricated Steel	High Carbon Steel	Cast Iron	High Carbon Steel with hardened teeth

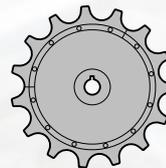
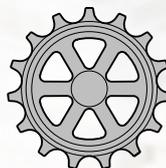
The vast majority of sprockets in use are of the one piece cast iron or fabricated steel design and are usually parallel or taper keyed to a through shaft. In this case it is necessary to remove the complete shaft to be able to remove the sprockets.

PRODUCT DESCRIPTION

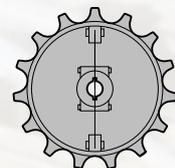
If quick detachability is necessary without dismantling shafts or bearings, then sprockets may be of the split type. These are made in two half sections and the mating faces are machined to allow accurate assembly with the shaft in place. This type of sprocket is particularly useful on multi-strand conveyors where long through-shafts are used, as considerable expense can be saved in sprocket replacement time. Sprockets with removable tooth segments are particularly useful where sprocket tooth wear is much more rapid than chain wear. With this type of sprocket, segments of teeth can be replaced one at a time without having to disconnect or remove the chain, thus considerable expense and downtime can be saved. Shafts, whether they are through shafts or of the stub type, should be of such proportions and strength that sprocket alignment remains unimpaired under load. Shaft sizes should be selected taking into account combined bending and torsional moments. (Consult Renold or refer to The Designer Guide Conveyor Chain for further details).

Segmental sprocket

Cast sprocket



Split sprocket



ALSO AVAILABLE FROM RENOLD

The need for reproducible standards of excellence requires finer and ever more stringent process control.

Renold's proficiency, total capability and flexibility offers designers, specifiers and end users the reassurance required for precision and accuracy. This distinguishes Renold as the Hallmark of Quality.

PM SERIES



PM Series are helical / worm geared motor units available in six sizes, up to 90kW capacity. A wide range of mounting and shaft options are available. The standard unit has ratios from 8:1 to 307:1 and when combined with RS Series helical gear units, offer ratios of up to 20,000:1.

TITAN



The Titan range of 10" to 28" centres, heavy-duty worm units, is available in single and double reduction types, ratios from 5:1 up to 4900:1, with input powers from 16 to 506kW.

GEARFLEX



Designed to AGMA and metric standards of interchangeability, the Gearflex 'A' series coupling is a heavy duty product with power capacities of up to 60,000kW @ 100rpm.