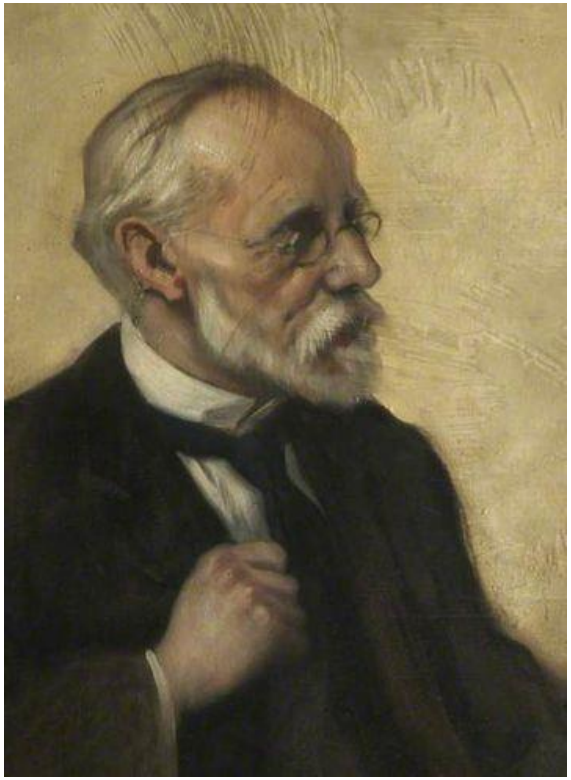
RotaLube®
SYSTEMS LIMITED



The Life of Chain

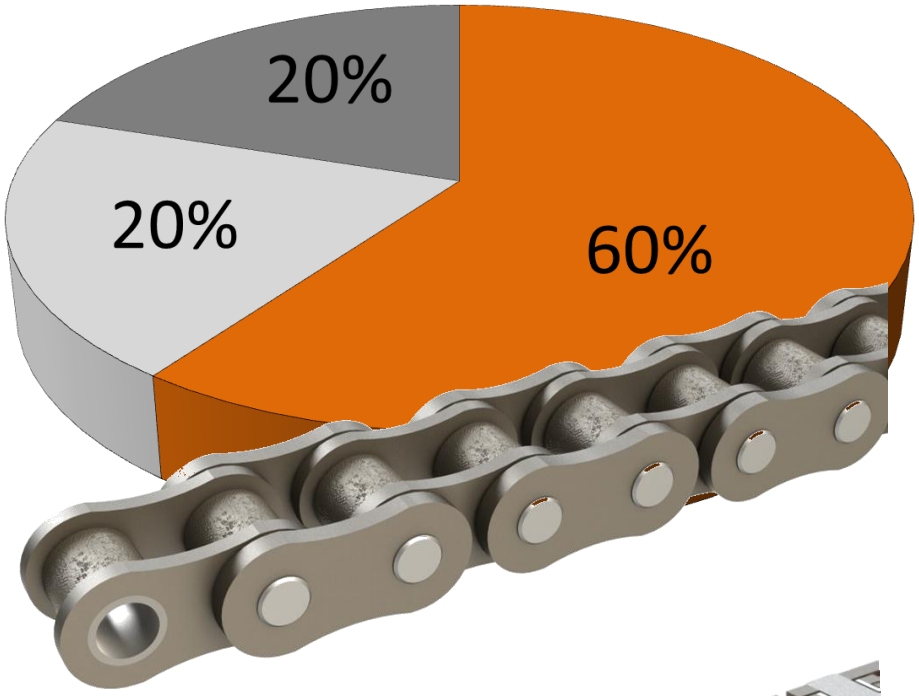
Hans Renold was a Swiss inventor & Industrialist who came to England at the age of 21 and started the Hans Renold Textile Business in 1879 and in 1880 invented the Bush Roller Chain .

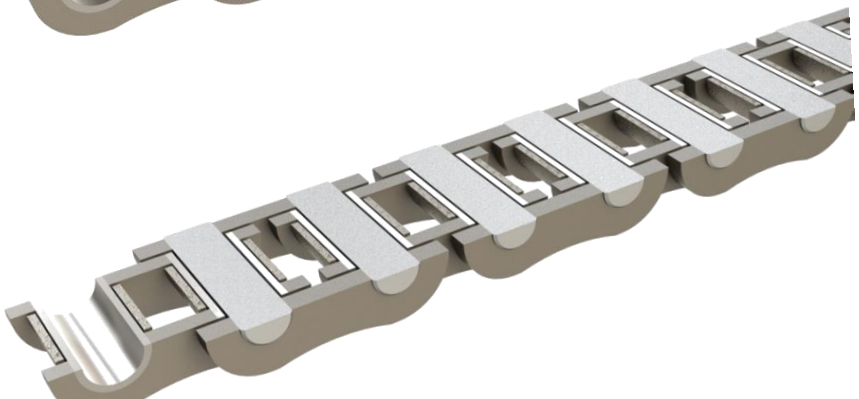
In order to maintain the quality of Chain all those years ago it was deemed that lubrication was the best practice to extend the life of chain.

In recent years chain manufacturers have developed versions of " Lube Free Chain" which was to revolutionise the Industry , making chain virtually maintenance free. In reality what is still evident some 136 years later that lubricated chain is still best practice to ensure the quality of the chain is maintained for the longest period possible .

Now in 2016 we have a **Unique Rotalube applicator** that will apply oil directly to the Pins on Roller Chain accurately and precisely whilst the chain is operating ,irrespective of speed. Rotalube applications are being specified as the preferred method of applying oil to chain for many by many of the worlds Blue Chip companies- this is growing.

Chain wear





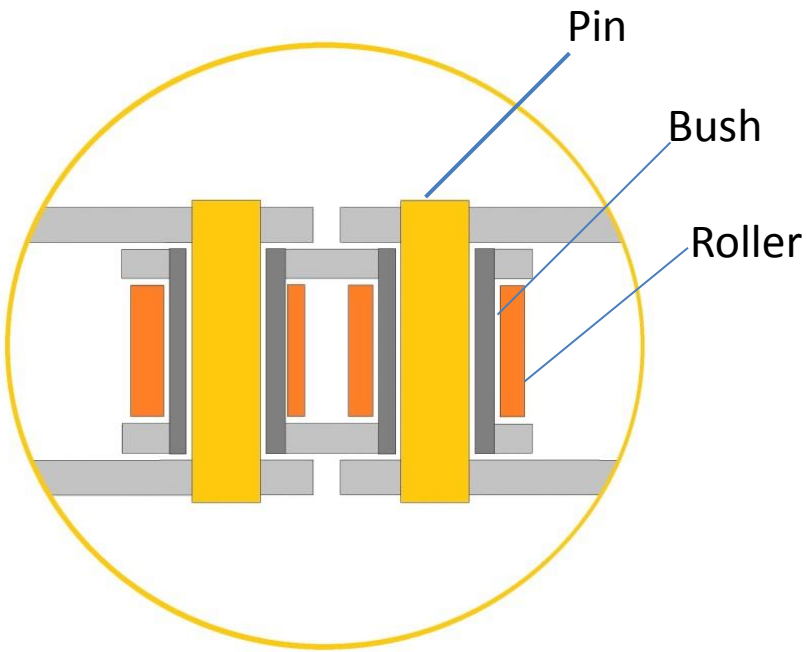
Causation of chain wear:

- 60% Lack of lubrication
- 20% Mechanical damage
- 20% Other

With 60% of chain wear a direct result of lack of lubrication, lubricating the chain, then, is essential if wear is to be controlled

Good lubrication: protects the chain from wear, elongation and corrosion; cushions the chain from impacts and shock loads; and acts as a barrier against heat dissipation.
Also, it decreases the friction between the chain parts, and, thus, reduces the amount of amperage required to power the system.

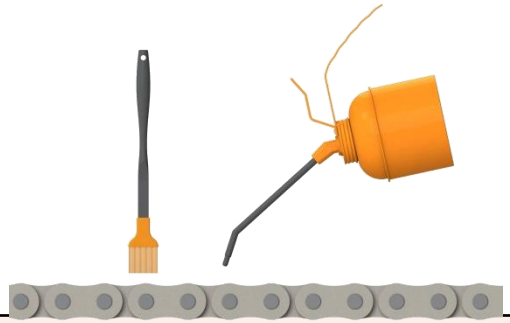
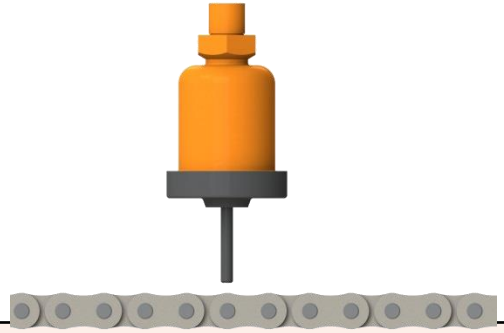
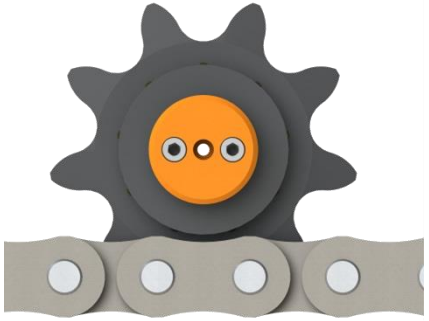
Chain wear and its effects



A roller chain is a series of connected journal bearings that articulate as they enter and leave the sprockets driving them. This articulation results in wear on the pins and bushes. As material is worn away from these surfaces, the roller chain gradually elongates

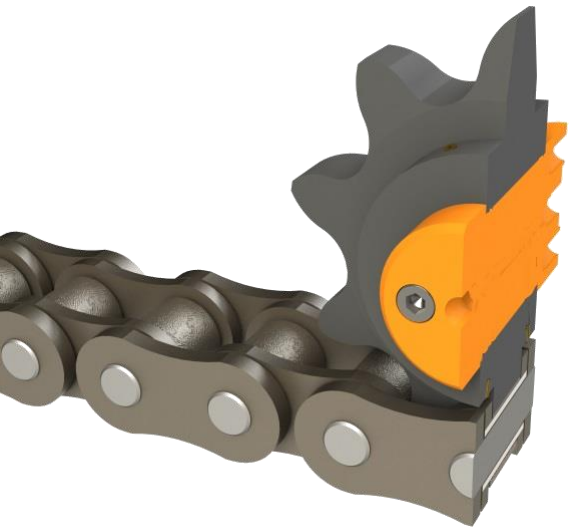
Therefore, because of elongation, which can account for tens of millimetre over the length of a chain, an automatic drip or spit system lacks the ability to precisely apply lubricant in the correct areas; with Rotalube this is not a problem.

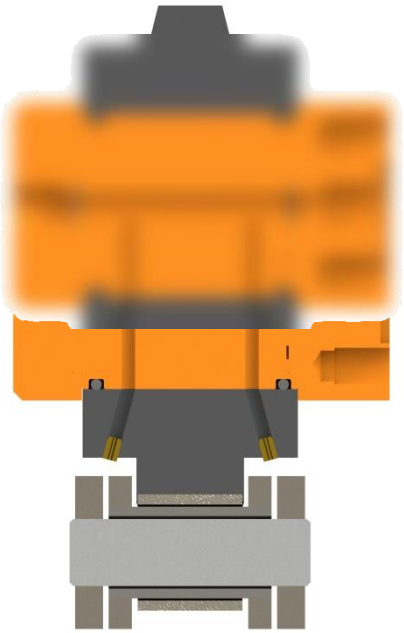
Chain lubrication methods available to overcome problems

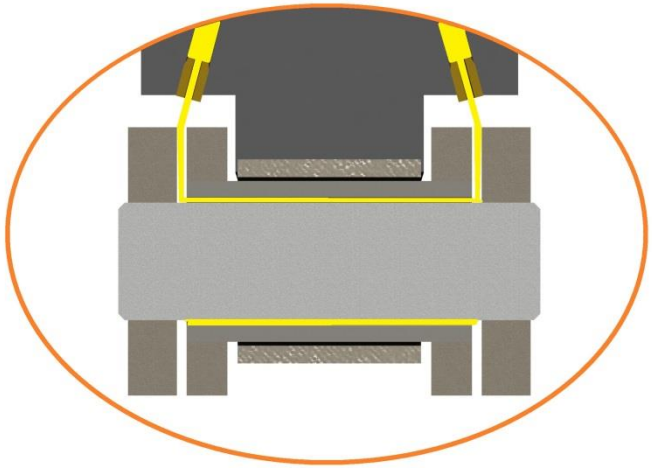
Manual	*Automatic*	
Brush or Can	Drip or Spit	Rotalube
		
Inaccurate, inconsistent, hard to control, fluctuates between under and over lubricated.	Inaccurate, unresponsive to changes in chain speed, is not synchronised with chain.	*NEW! WONDERFUL!*

How Rotalube works

Section blurred because
Rotalube Patent

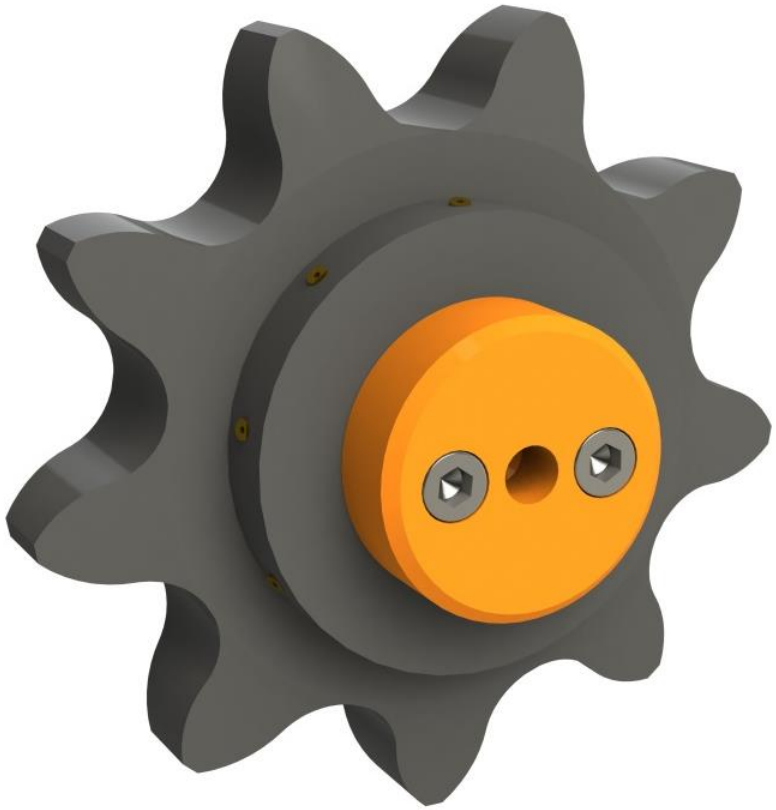






No matter what the chain speed, or its elongation, Rotalube very precisely applies an accurate amount of lubricant to the target pins and bushes.

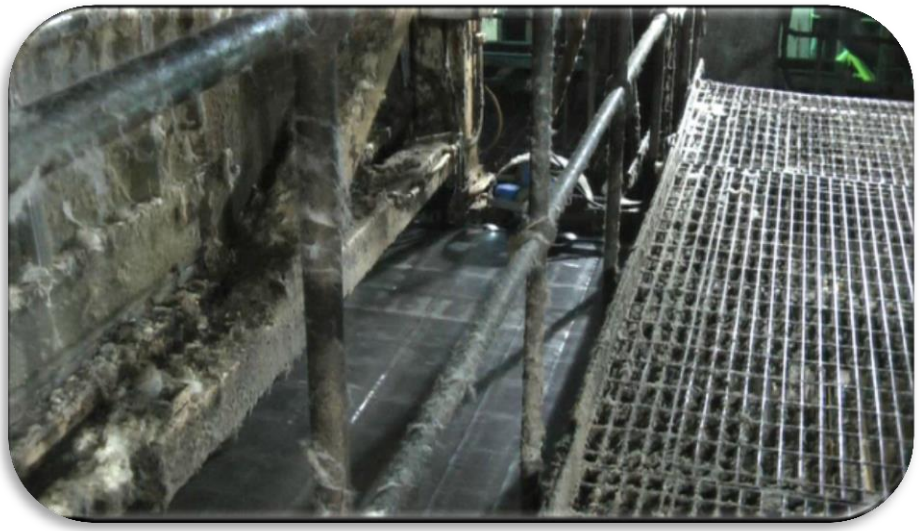
Benefits of Rotalube



Benefits of Rotalube over traditional chain lubrication:

- A saving of lubricant
- Increased chain life
- Less downtime
- Less cleaning
- Reduced Amps

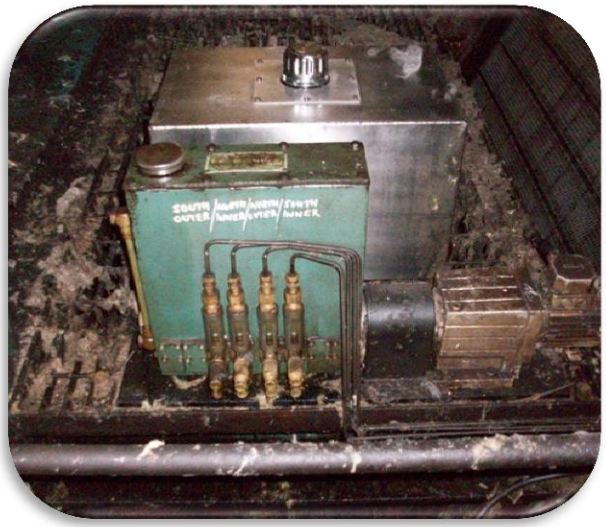
Two case studies



Glass fiber oven.
Rotalube feeding a 6
Inch pitch chain

Small Standard 1 inch
pitch chain that simply
Indexed.

Glass fiber ovens



Rotalube replaced oil spit/spray system on Forming oven saving $80K Per year in oil.

Rotalube replaced PDU spit system (as shown) on a 6 inch pitch, forming oven chain.

Glass fiber oven

Oil consumption of the Spit system was 12 Liters/day.
At £4.00 a liter, that equated to £48.00 per day.
£48.00 x 7 days x 48 weeks = £16,128 per year.

Rotalube saw a reduction in lubricant of 4 Liters per day.
£4.00 x 4 x 7 days x 48 weeks = £5,376 per year.

That is a saving of: £16,128 - £5,376 = £10,752 per year.

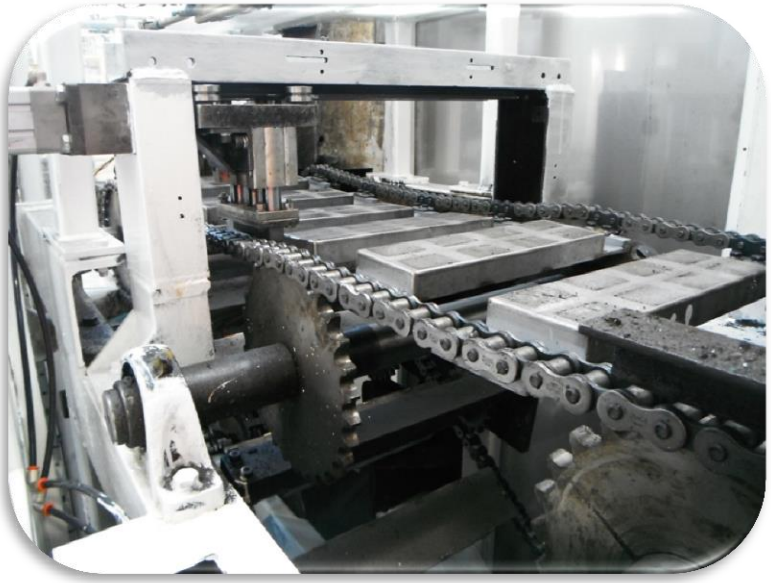
Glass fiber oven

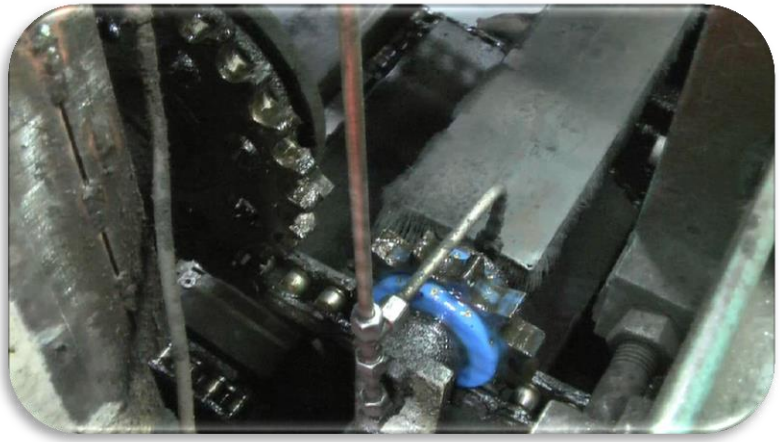
Cost of chain replacement: £40,000
Cost of Labour to fit new chain: £26,000

With Rotalube, the life of the chain has increased by 50% to 2 years. That is a £33,000 saving.

Rotalube, then, is saving Knauf £43,752 per year, on lubricant, reduced amperage and increased life of chain.

Rotalube System paid for itself after just 137 Days.





On a Federal Mogul paint line for brake pads, a Rotalube was introduced.

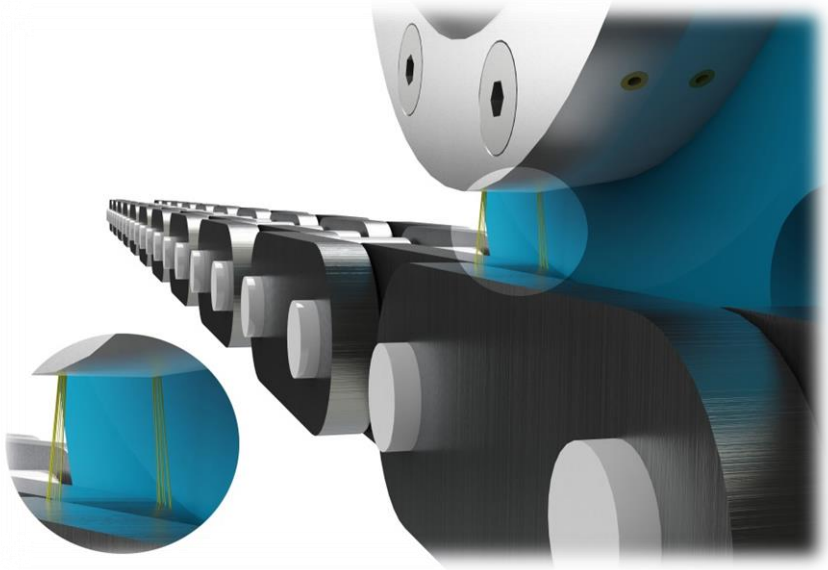
Prior to Rotalube, a brush system was used for lubrication which, at 20 liters/month, (20 x £3.00) cost £720.00/year.

Also, on average, every 3 months the machine would fail, resulting in 2 hours lost production. Cost of downtime, because of failure:

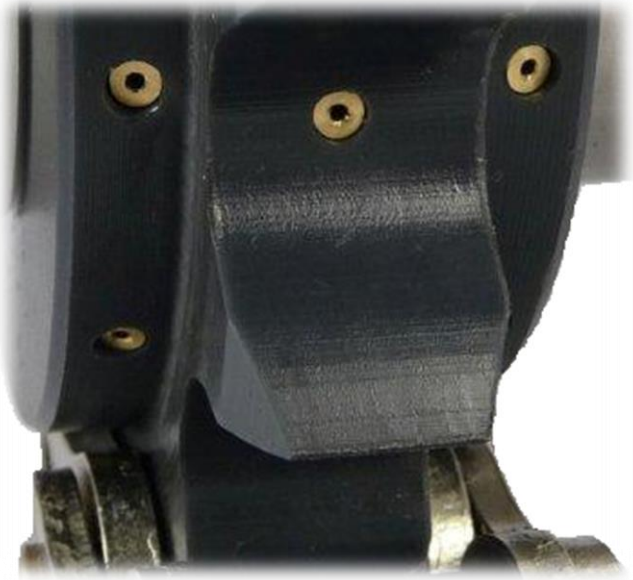
- 2 hours to lube the chain at £25.00/hour = £50.00.
- Lost production at 3000 parts per hour, with parts costing £1, £3 or £7. Mean part cost, £3.66. (£3.66 x 3000) x 2 = £21,960.
- 150Kw Heat for 2 Hours = 150Kw x 0.1279 per Kw = £38.37.

Total cost each failure: £22,048.37

Conclusions drawn from case studies



- Reduces System contamination.
- Saves on lubricant consumption.
- Increases chain life.
- Reduces System amperage.
- Reduces downtime. Downtime that would otherwise have been necessary to either replace failed chain or clean contaminated chain.
- Pays for itself, on average, after just 118 days.

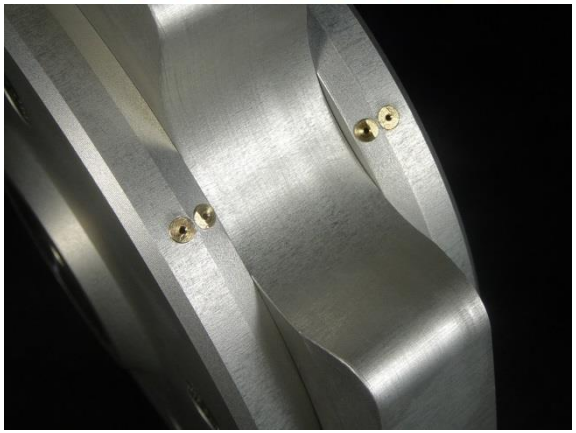


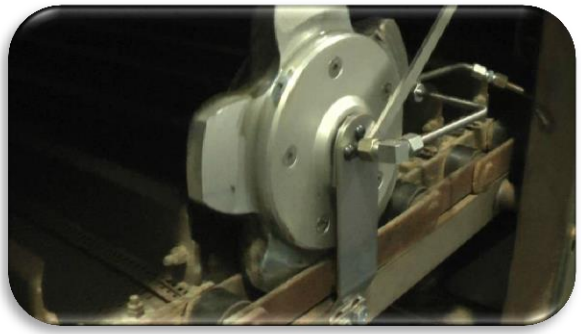
Chocolate Molding plants

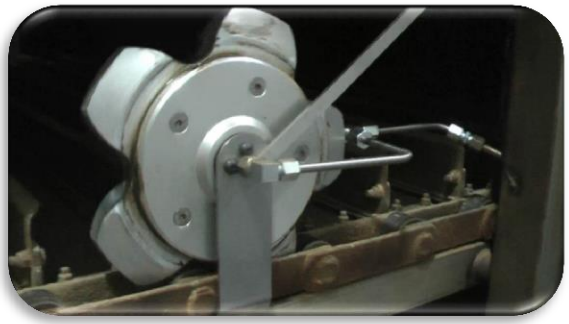
Rotalube was introduced on a chocolate production line, replacing a traditional brush lubrication system. Because Rotalube applies an accurate, controlled amount of lubricant - and, unlike the brush system, doesn't over lubricate - the customer benefitted from less down time, as they no longer had to regularly stop to clean the contaminated chain and sprockets.

No Consumer Complaints

Clean and Lubricate







Before Rotalube, oven had to be turned off, and the chain had to be cleaned, before lubrication.

Benefits of Rotalube

Benefits over traditional chain lubrication systems:

- A saving of lubricant
- Increased chain life
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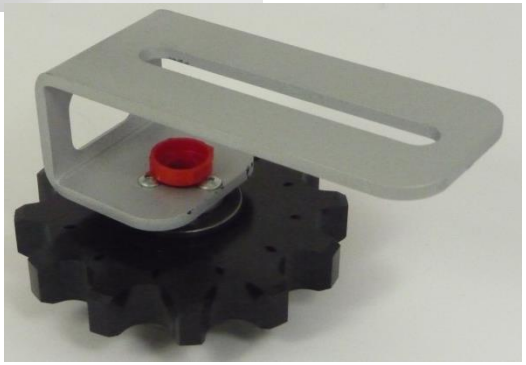
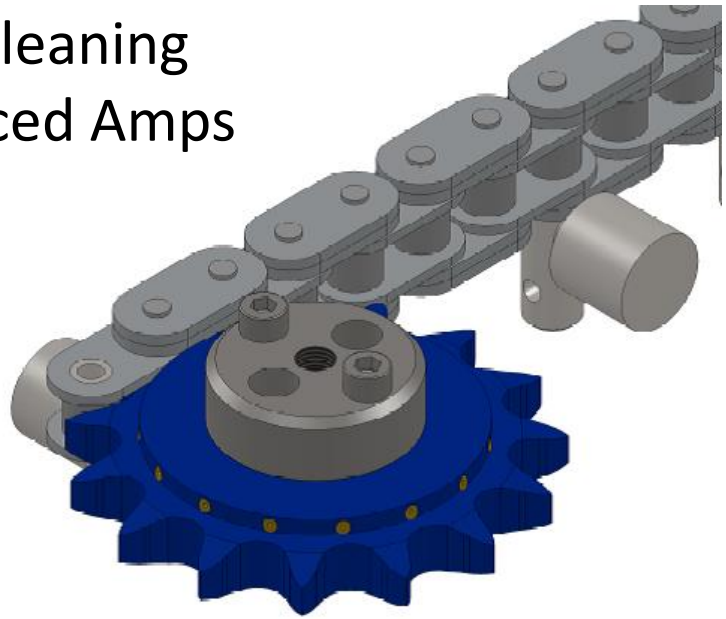
- Less cleaning
- Reduced Amps





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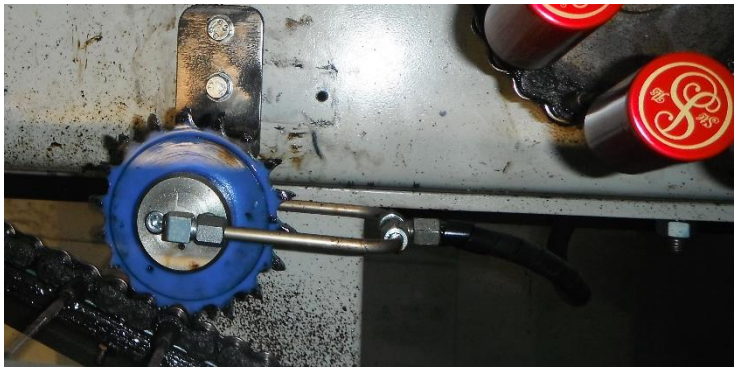
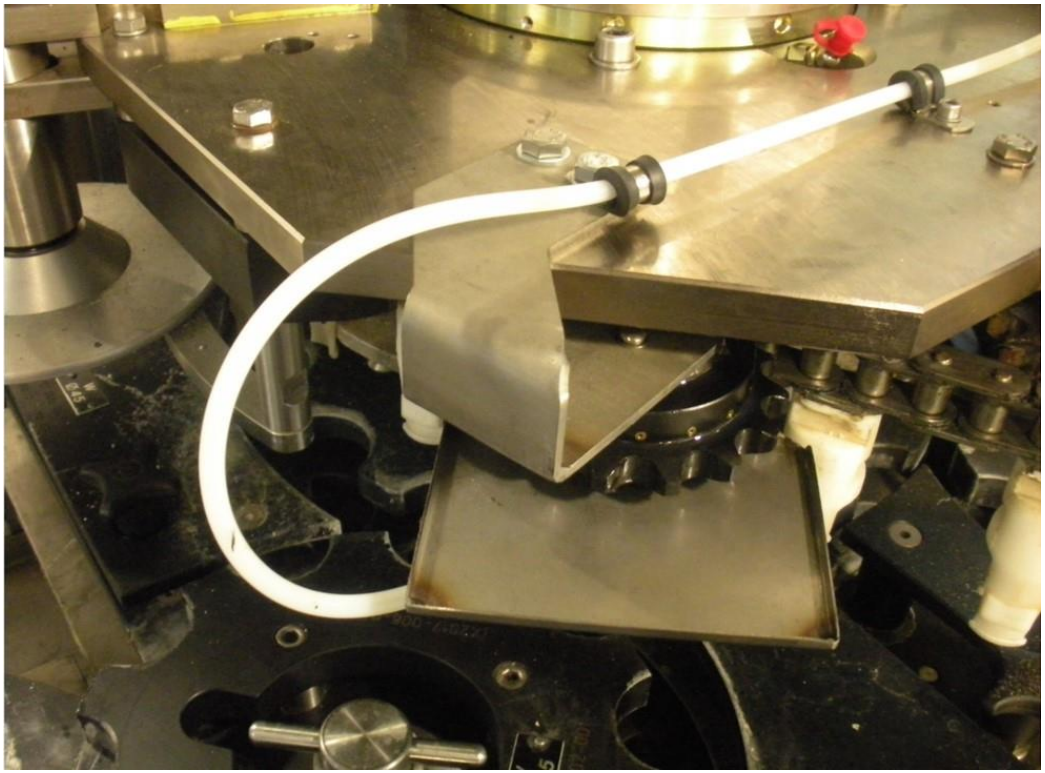
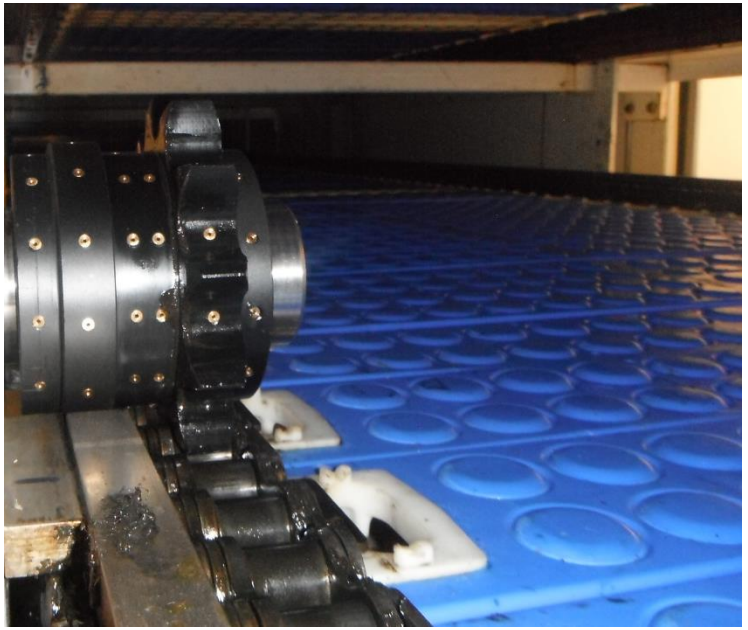
Food Processing.

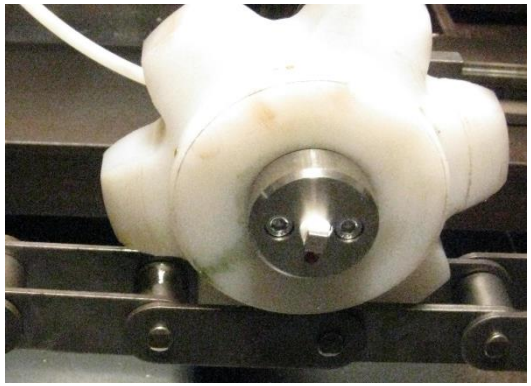






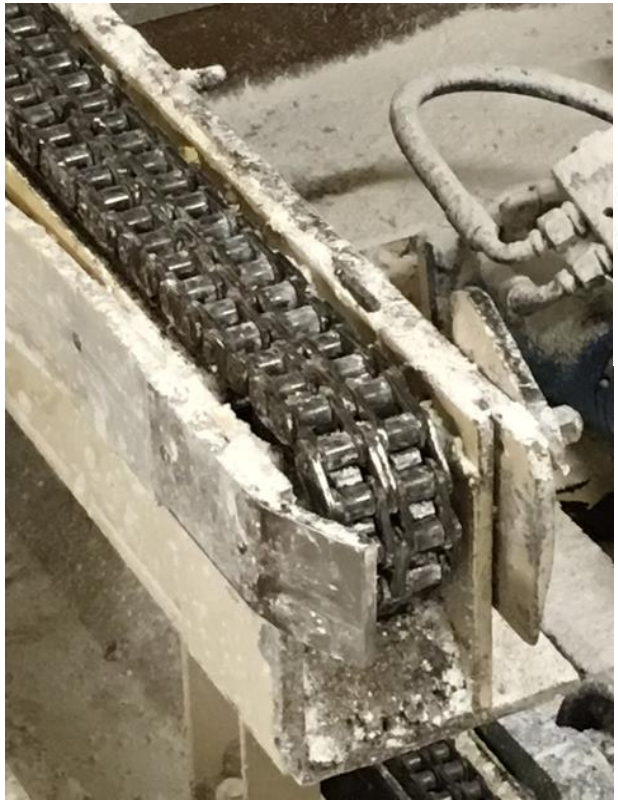
Extend Chain Life not the Chain – Improve Cleanliness –Reduce Amps – Reduce Oil consumption

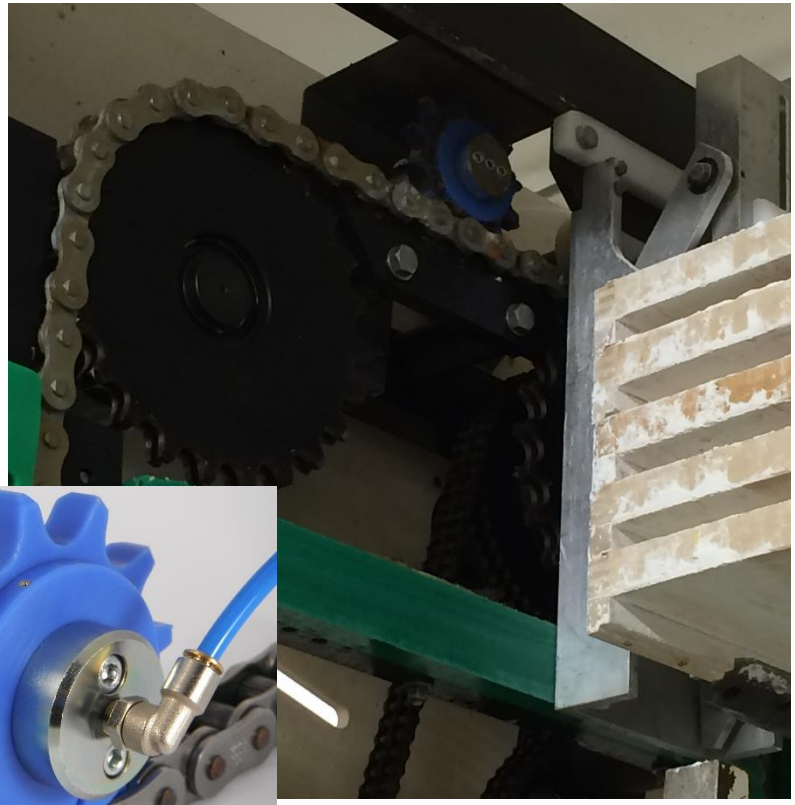
Packaging.



Extend Chain Life not the Chain – Improve Cleanliness –Reduce Amps – Reduce Oil consumption

Palatizing .





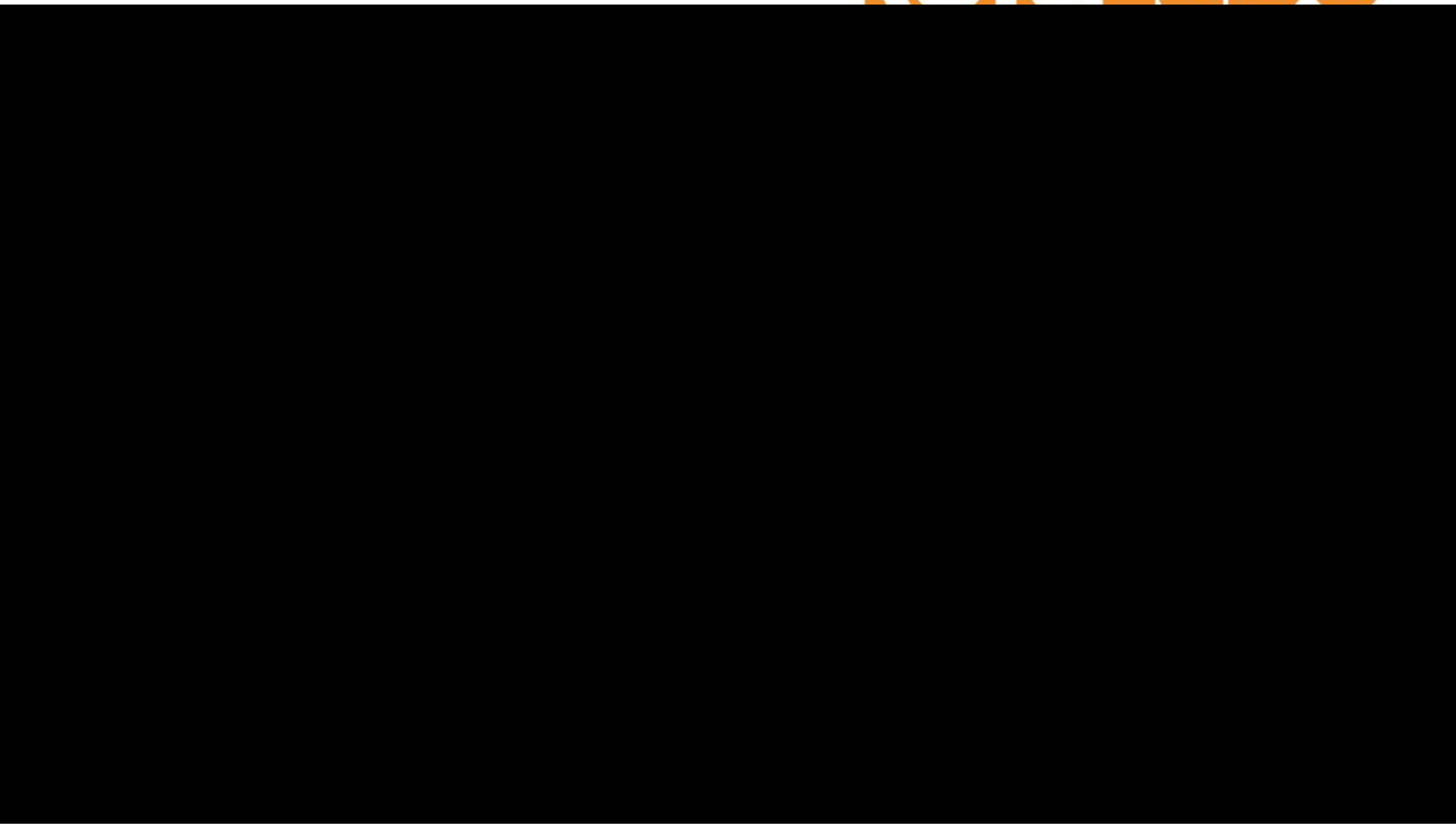
Extend Chain Life not the Chain – Improve Cleanliness –Reduce Amps – Reduce Oil consumption

Suitable Lubricants for The Application .

Quality, lubricants suitable for penetrating Chain with
good lubricating properties in the working conditions that are suitable for Centralised Lubrication Systems – Rotalube Systems.

Lubricant considerations :-

- Temperatures
- Penetrants
- Protective properties




FEDERAL MOGUL
next
McDonald's
Unilever
Kimberly-Clark
HARIBO
KNAUF
RotaLube
SYSTEMS LIMITED
Kellogg's
greencore
group
VEKOMA
RIDES MANUFACTURING BV
SCA
Care of Life
British Gypsum
SAINT-GOBAIN
Nestlé
TIMKEN