brooks

World Class Precision Engineering

HIGH PERFORMANCE PIN OVEN CHAIN

INTRODUCTION

Brooks are the world's leading authority on the manufacture and supply of high performance pin oven chains to the Beverage Can Industry. Complimenting the chains is a range of precision sprockets for the oven, pre-dry and chain return, single sided chain guide, electrostatic lubricators, bull gears, inker gears and anti-backlash gears.

Brooks was founded in 1973 and has been involved within the two piece can industry ever since. The company headquarters and main manufacturing facility is located in Manchester, England. The North American sales and distribution centre is located in Denver, Colorado and there is a secondary manufacturing facility in Kuala Lumpur, Malaysia.

PIN OVEN CHAIN

Brooks pin oven chain is manufactured in 21ft/6.4m lengths. Each chain starts and finishes with a 3 pitch section and is supplied with a spring clip connecting link. Pins are located every 7th pitch as standard (other pitch spacings are available) and each length contains 48 fully assembled pins. Pins are assembled with spring loaded PEEK tips.

FIXED PIN

Integral pin oven chain

This chain is riveted throughout, including the extended pin, and is widely regarded as offering the longest chain life of all integral chains.

Optima pin oven chain

The superior surface treatments applied to the chain bearing pins of the Optima model produce a chain of exceptional quality, offering excellent results in minimal lubrication environments.

Lube free pin oven chain

Sintered bush technology allows our lube free chains to run 'dry' with zero operational lube providing a totally clean operating system.

REPLACEABLE PIN

Hollow pin oven chain

Lock nuts developed to aerospace industry standards secure the pins in the chain yet allow quick and easy replacement whenever necessary.

Front fixing pin oven chain

Similar to the hollow pin chain, this design also allows for easy replacement of the can carrying pin. With this design the pins are secured using cotter pins on the same side as the extended pin making this chain ideal for encapsulated chain guide systems.

BESPOKE DESIGNS

Dual pin oven chain

Specially designed to suit dual can transfer units giving the benefit of doubling can production for any given chain speed. Chains are assembled with small diameter tips to aid can transfer and a central cone to aid can stability.

Special hollow pin

Brooks can offer any pin spacing to suit all customer requirements.

TECHNICAL

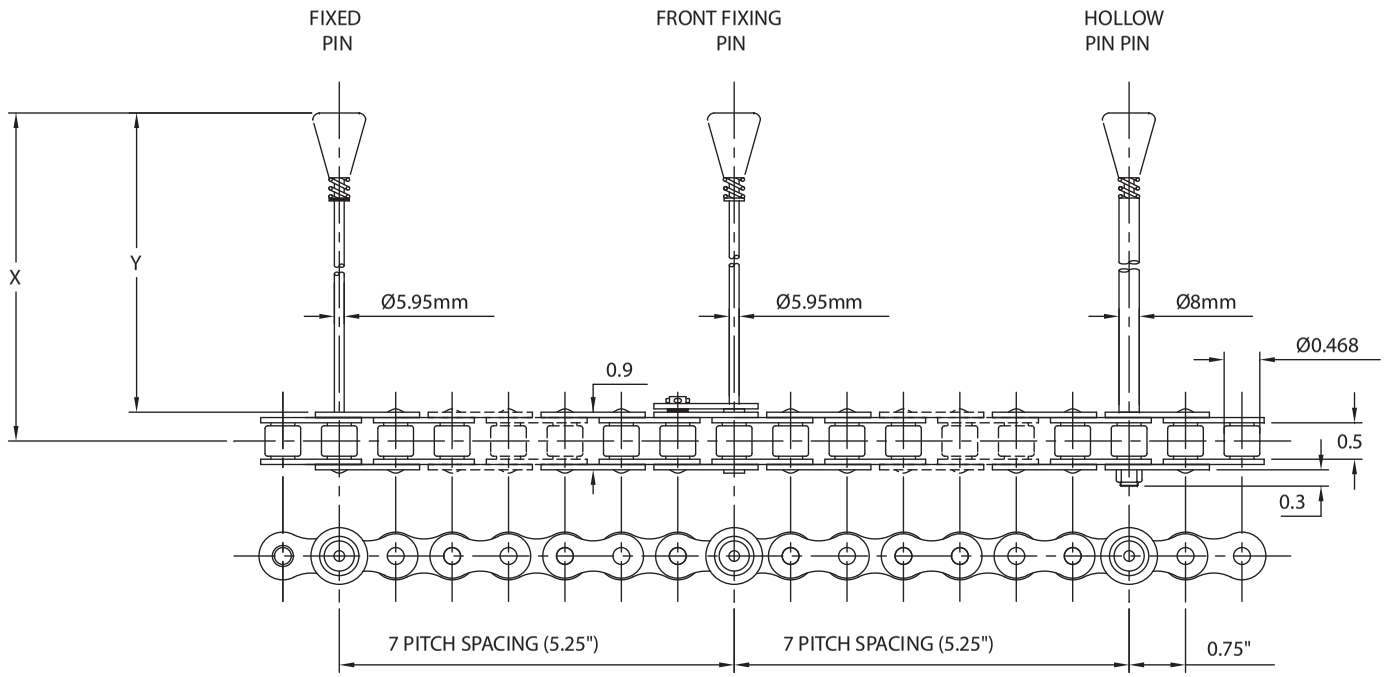
Our chains are:

- Pre-lubricated with H1 food grade lubricant then centrifugally spun to remove the excess
- Solid roller and solid bush
- High waist link plate shape to give better stress distribution
- Components manufactured to the highest specifications for unbeatable accuracy
- End-softened pins for easy disassembly
- Unbeatable wear and fatigue resistance
- Longer consistent working life
- Reduced bedding-in times
- Better resistance to shock loadings

DIMENSION IN INCHES UNLESS STATED

CENTRE-LINE TO END OF TIP: X =

SIDE PLATE TO END OF TIP: Y =



Alt No.	Date	Grid	Alteration

GENERAL TOLERANCES mm(")
0.0 ± 0.25mm (±0.010")
0.00 ± 0.1mm (±0.004")
0.000 ± 0.025mm (±0.001")
ALL OTHER DIMENSIONS ±0.5mm (0.020") UNLESS STATED

SURFACE FINISH
3.2 µm CLA
WHERE APPLICABLE OTHER VALUES ARE SHOWN ABOVE SYMBOL IN MICRONS

MATL	VARIOUS
HT	-
SCALE	NONE

Brooks

THREE STANDARD PIN CHAIN OPTIONS

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POC-?

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TECHNICAL SPECIFICATION

Brooks High Performance Pin Oven Chains:

Base Chain:

¾″ pitch ASA60 simplex chain, fully assembled with an extended pin/hollow pin every 7th pitch (5.25″).

Chain manufactured in 21ft lengths (6.4m, 336 x 0.75 pitches). Each length supplied with a spring clip connector.

Dimensions:

Pitch:	19.05mm (¾″)
Inside width:	12.57mm min
Bearing pin dia:	5.95mm
Bearing pin length:	25.3mm
Roller dia:	11.91mm
Extended pin dia:	5.95mm (fixed pin and front fixing chain), 8mm (hollow pin chain)

Pins:

Pins manufactured from special heat treated alloy steel (fixed pins & front fixing chain)/hardened carbon steel (hollow pin chain) to suit customer specifications. Measurement required is centre line of the chain to the end of the tip.

Tips:

Each extended pin will be fitted with a spring-loaded conical tip manufactured from PEEK. Tips will be seated on springs and retained by fixing collars. Special designs are available. Please contact Brooks for further information.

Lubrication:

Individual 21ft lengths pre-lubricated with a high temperature, high viscosity H1 synthetic oil.

Packing details:

Individual 21ft lengths placed in plastic bags then packed in cardboard boxes. Cardboard boxes packed in treated wooden shipping case.

TIP OPTIONS

We offer three sizes of tip (18mm, 21.5mm & 35mm diameter) to suit the three main can body diameters; slim, standard and large 1 litre cans.

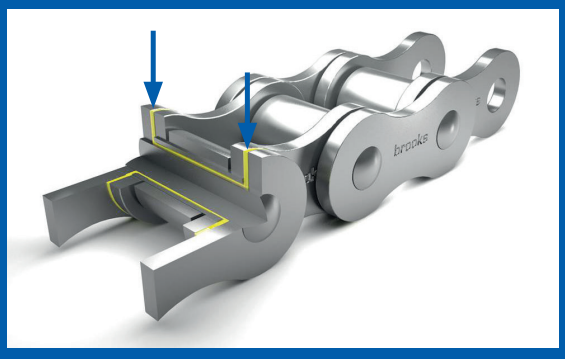
Our standard range of tips are manufactured from PEEK using the latest in high temperature moulding techniques and with a melting point of 343°C, PEEK is the most suitable material for modern high speed can lines. Dual tip options are also available to aid can stability.

LUBRICATION

To maximise pin chain life a good quality lubricant must penetrate the chain to form a barrier between the chain bearing pin and bush. Not only does the oil need to prevent the metal to metal contact between the pin and bush under high load conditions it needs to withstand high temperatures, have low residue formation and conform to H1 NSF regulations.

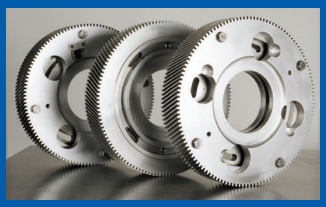
Large volume, low frequency application is not the correct way to lubricate pin chains. This leads to high residue formation, oil fling contamination and poor transfer efficiencies. To reduce the volume of oil applied to the chain, atomisation lubricators were introduced but these systems still caused needless contamination, specifically airborne contamination, and high Metal Exposure reading. Brooks, together with their technical partners, have helped develop Electrostatic Lubrication for pin oven chains. Working on the principle of 'opposites attract', a negative charge is applied to the lubricant as it flows from the nozzle causing the stream to be attracted to the chain like a magnet. Once the lubricant hits the chain the negatively charged oil particles disperse into the chain direct to the bearing surfaces.

Typical application setting is one full chain revolution on – two revolutions off. Using these settings the system typically applies 346cc's (0.346 litres) of oil per 24 hours. Lubricator nozzles need to be set approximately 20mm above the chain and positioned so that oil is applied to the lubrication path between the inner and outer links plates.



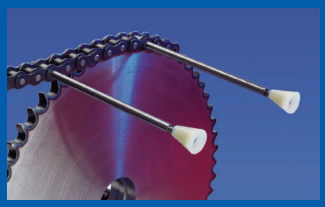
Lab results and trials have proved Kluber NH1 CH2-220 is an excellent lubricant.
Please note not all oils work well within electrostatic lubricators.

ASSOCIATED PRODUCTS



Precision Gears

Brooks can provide precision gears to suit all two-piece and three-piece applications, including print cylinder gears, inker gears, bull gears and anti-backlash gears.



Precision Sprockets

Brooks manufacture sprockets from certified ground plate and strict tolerances are applied to flatness, concentricity, tooth profile and pitch. Tooth hardness is achieved by 'tooth by tooth' induction hardening or tooth 'flame hardening'.

Adjustable Chain Guides

Installed on alternate sides of vertical runs and above and below on horizontal runs, Brooks single sided chain guides are designed to reduce chain and can contamination. They are easy to install, easy to maintain, easy to adjust and easy to clean.

PIN CHAIN MAINTENANCE

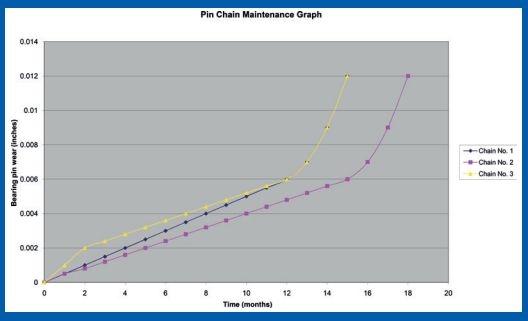
Chain life is dependent on bearing pin wear. Bearing pin wear occurs when the surface of the pin rubs against the surface of the bush causing the pin to wear and the chain to 'stretch'.

Factors affecting bearing pin wear:

- Poor quality lubricant
- Poor application of lubricant
- Not enough lubricant being applied to the chain
- Sprocket misalignment
- Chain contamination
- Prolonged period of stationary time in the oven

All of the above can be identified and action taken if the 'Brooks Preventative Maintenance Program' (BPMP) is implemented. Please contact Brooks for further information.

BPMP CHAIN LIFE GRAPH



BPMP TROUBLE SHOOTER

No lubricant on bearing pins:	Increase volume & or frequency of lubrication Check lubricator is working Check nozzles are clear and in correct position Check chain contamination to ensure lubrication path (gap between inner & outer link plates) is clear
Evidence of blue colour on pins:	Blue colour signifies pin has reached high temperature caused by friction between pin and bush due to lack of lubrication:- Check all of the above Check viscosity index of lubricant
Evidence of link plate marking:	Check sprocket alignment Check sprocket to guide alignment Check sprocket radial runout

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