

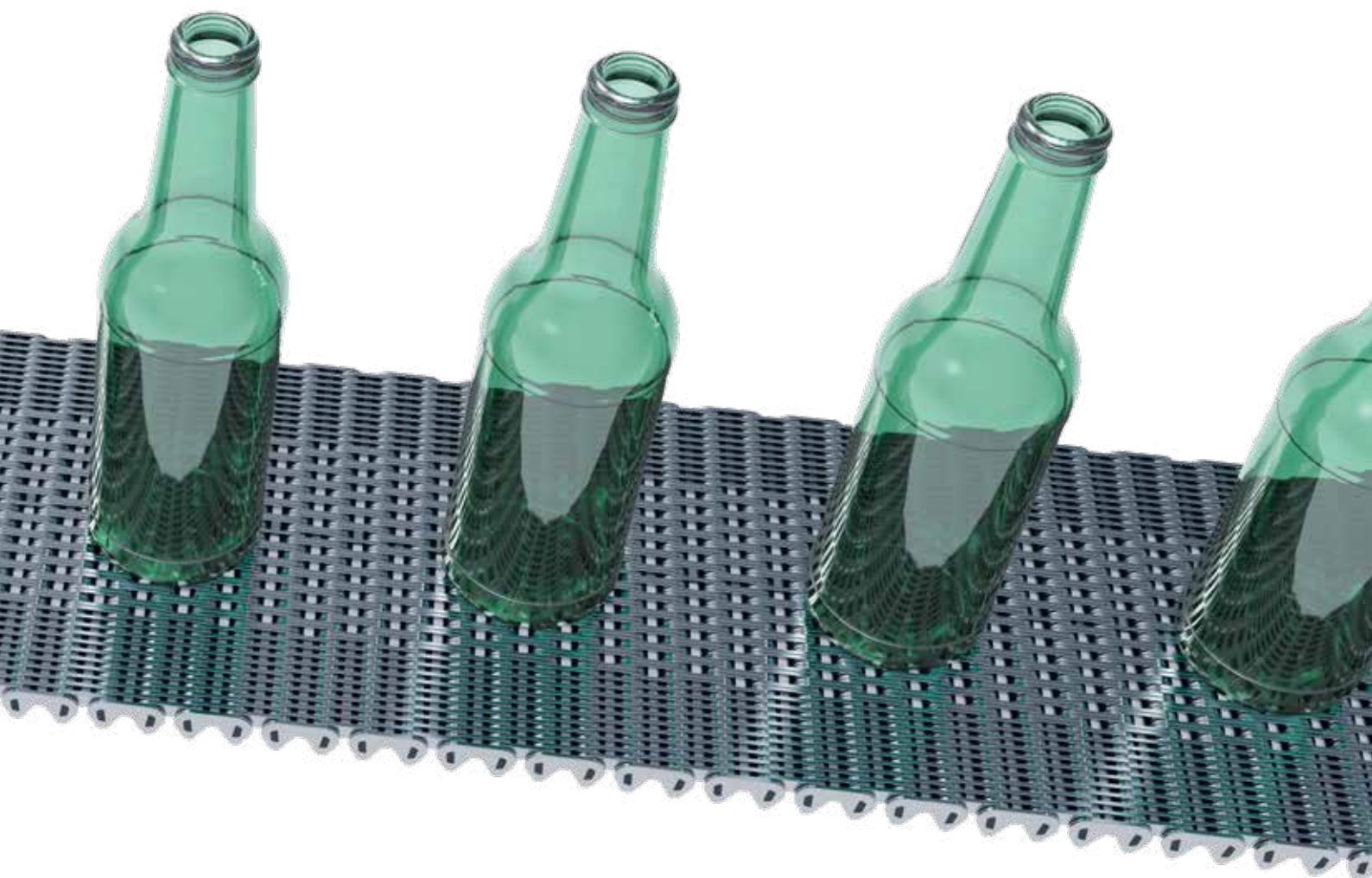
# Pennine Premium Silent Chains

PENNINE



INDUSTRIAL  
EQUIPMENT

## Overview



**calibre**™  
THE FUTURE OF CONVEYOR CHAIN



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# 1/2" pitch chains



## 2 Pin Chain - 2P



Our most highly engineered chain, with 3 years in development, **calibre** 2 Pin chain has been specifically designed for the future of IS machine glass production. **calibre** chain is designed to excel in the demanding modern environment of high speed production. **calibre** chain has been engineered to perform at speeds in excess of 60 M/min and resist elongation far more than single pin.

- Highest performing chain for the most demanding environments
- Designed for use in high speed production
- Laser welded pins to prevent pin protrusion
- Direct replacement for any other silent chain
- Less maintenance and elongation than single pin chain
- **calibre** chain only available from Pennine Industrial Equipment
- Also available in stainless steel

## Single Pin Chain - P



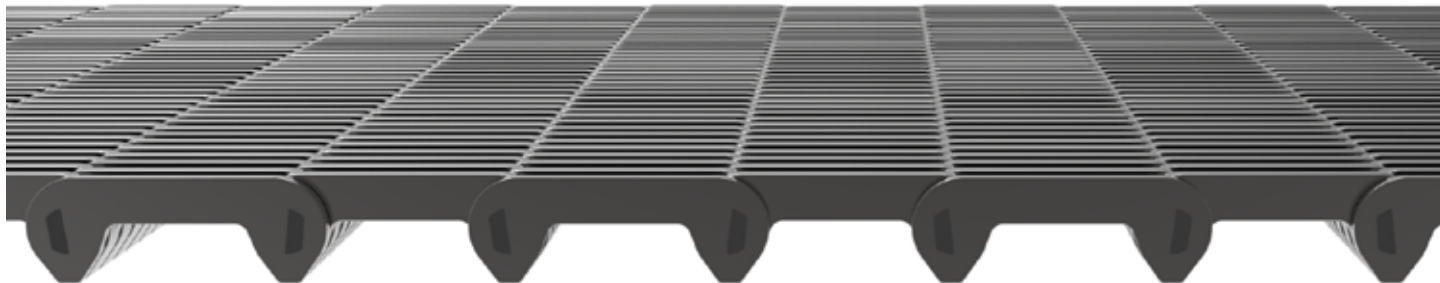
Single pin chain is the original tried and tested design of conveying chains. Proven over the last 80 years it can perform in the harshest and most challenging environments. Pennine have been manufacturing single pin inverted tooth silent chain for over 40 years from our dedicated facilities based in the UK.

- Original tried and tested design
- Designed for use in the majority of environments
- Various Head Protector options
- Direct replacement for any other silent chain
- Quick connection option available through Penn-Lock
- 40 years of manufacturing experience
- Available in 10.2 mm height low profile option
- Also available in stainless steel

# 1" pitch chains



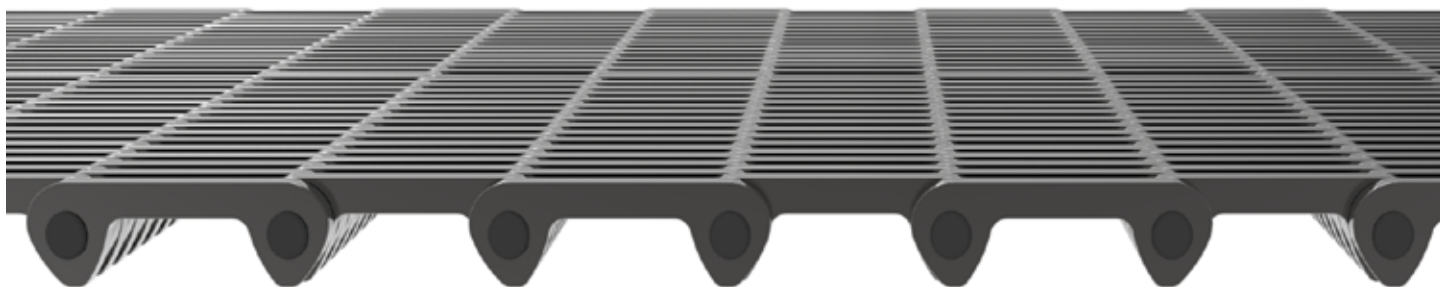
## Extended Pitch 2 Pin Chain



**calibre** ext chain is a combination of our **calibre** 2 Pin system combined with our proven extended pitch chain. Pennine have further improved Extended Pitch Chain by incorporating the same blanking and manufacturing techniques as utilised in the ½" pitch 'PREMIUM' chain. All **calibre** ext chain is supplied with laser welded outer links protecting the pins from wear.

- Highest performing chain for the most demanding environments
- Designed for use in high speed production
- Laser welded pins to prevent pin protrusion
- Direct replacement for any other silent chain
- Less maintenance and elongation than single pin chain
- **calibre** chain only available from Pennine Industrial Equipment

## Extended Pitch Single Pin Chain



Extended Pitch Chain was originally designed for Hot End Engineers who required a lightweight Conveyor Chain which would run on their existing ½" pitch sprockets. Two main changes made it possible to produce this lighter weight chain. The nominal link thickness was increased from 1.5mm, as used in standard ½" pitch chains, to 2.3mm. The chain pitch was extended, hence the name 'Extended Pitch', from ½" to 1" pitch. Extended Pitch chain is approximately 35% lighter than standard ½" pitch chain. Pennine have further improved Extended Pitch Chain by incorporating the same blanking and manufacturing techniques as utilised in the ½" pitch 'PREMIUM' chain.

- Original tried and tested design
- Designed for use in the majority of environments
- Various Head Protector options
- Direct replacement for any other silent chain
- 40 years of manufacturing experience





# Assembly Options

## Link & Spacer - **W**



Link and Spacer chains are manufactured by assembling a single washer between each link plate, allowing the overall chain weight to be reduced by approximately 25%. The increased space between the link plates allows carbon and debris to fall through, whilst at the same time allowing for much greater airflow through the chain when under-belt cooling is required.

## Link & Thin Spacer - **TW**

Thin Spacer chains offer 25-30% more link surface than a normal link and spacer chain giving improved resistance to elongation and link height wear. There is a 50% reduction in the distance between links giving improved stability over normal Link and Spacer Chain. Link and thin spacer is only available in single pin chains

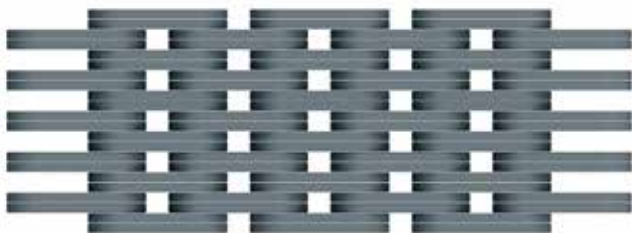
## All Link - **L**



All Link chains are manufactured from 100% links to provide the maximum working surface and provide the smoothest handling of glass containers. The individual link plates are positioned to give the minimum space between each link plate, the result being a chain which gives maximum stability and is suitable for use with very small or unstable glassware.

An additional advantage is that a chain made only from link plates rather than the Link and Spacer assembly will give the user considerably less elongation at higher conveyor speeds due to the fact there are 100% more points of contact on the driving pins.

## Double Assembly - **DA**



These chains incorporate two factors which are important in today's modern high speed glass container manufacturing, that of bottle stability and under belt cooling. By using the Double Assembly instead of Link and Spacer design, the spacing is reduced from 4.5mm to 3mm, resulting in a chain with much improved and all important bottle stability when compared with the original Link and Spacer design of chains.

Double Assembly chains are manufactured with 100% more links than the original Link and Spacer chain, resulting in a stronger chain with a greater load bearing surface giving longer chain life whilst still offering excellent air flow where under-belt cooling is required.

## Special Assembly - **DACS**

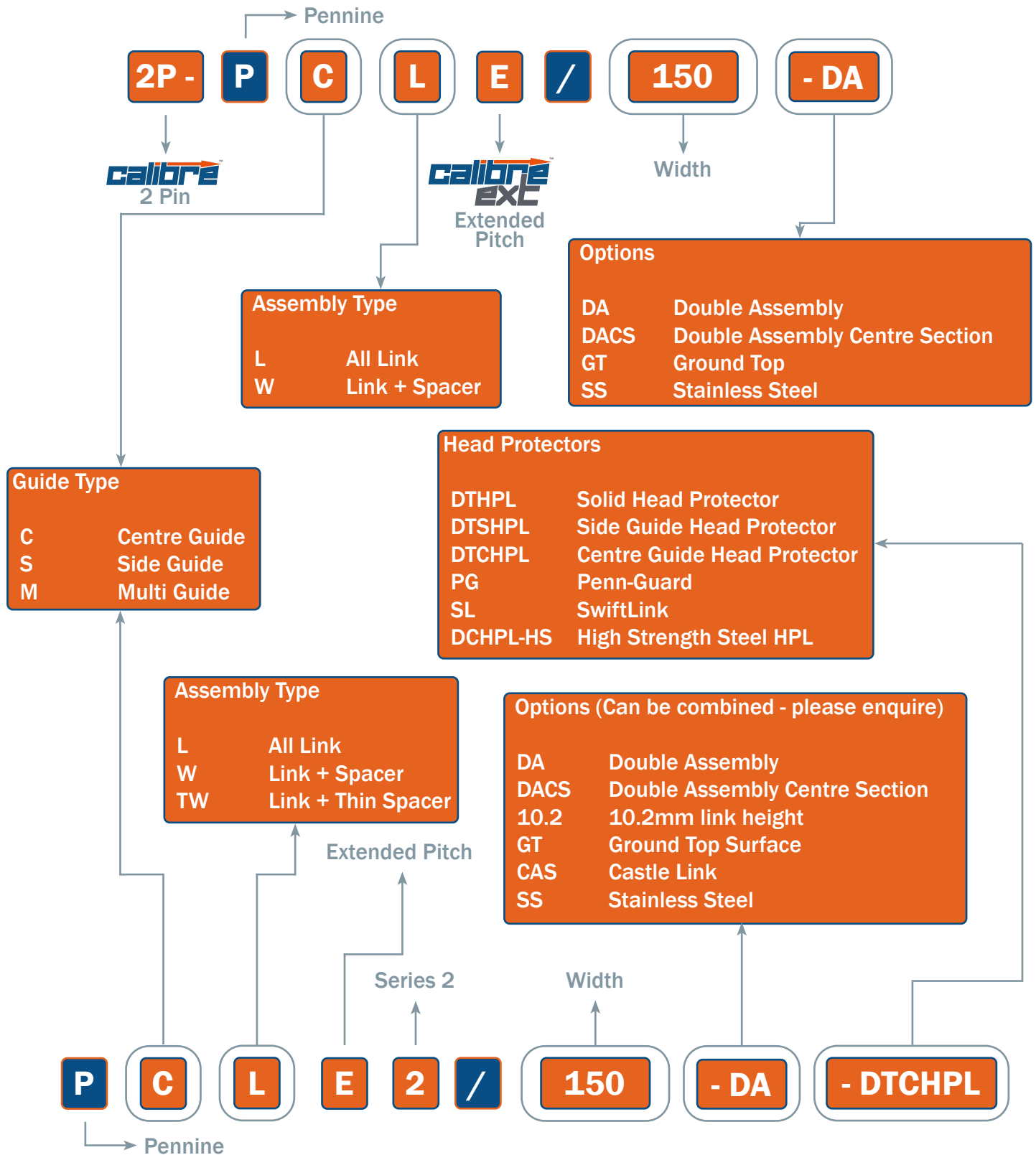


Pennine offer a range of custom made Conveyor Chains designed to meet the customers' individual requirements. Individual rows of washers can be built into All Link Chain, which results in targeted under-belt cooling whilst still giving maximum stability over the remainder of the chain's working surface.

Also, a very popular option is the Double Assembly Centre Section (DACS) chain, which is made up from a large centre section of Double Assembly links to give excellent under belt cooling, but edged with rows of all link assembly to give maximum stability at the point of product transfer.

# Part Number Guide

## calibre<sup>™</sup> part numbers



## Single pin part numbers



# Stainless Steel + Castle Link

## Stainless Steel Chain - **SS**

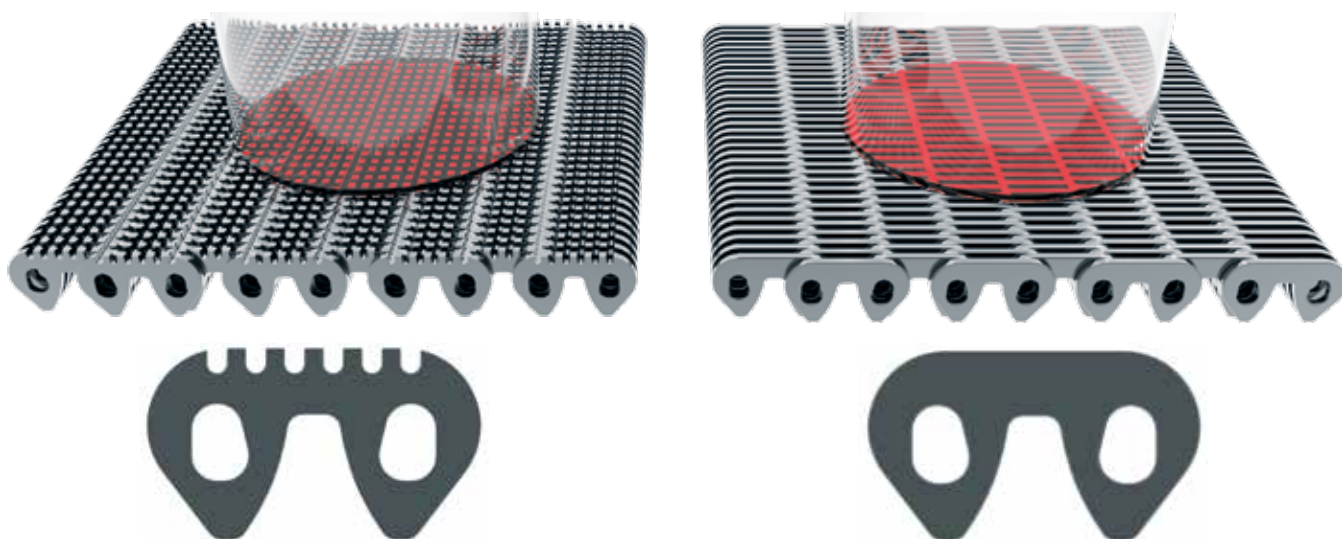


The thermal properties of STAINLESS STEEL reduce the risks of thermal checking by retaining more heat energy than regular carbon steel chains:

- Reducing or eliminating the need for gas burners.
- Reducing operating and maintenance costs.

The corrosion resistance of STAINLESS STEEL Conveyor Chain also prevents any oxidation marks common with carbon steel Conveyor Chain marking the bottom of the glass container, especially important in the high quality Cosmetic Industry. Pennine Industrial have selected 420 grade stainless steel for its excellent mechanical properties and because it can be hardened. This means that our STAINLESS STEEL chain has EXACTLY the same wear resistance as our carbon steel chain. As the pins never come into contact with the glass all Pennine STAINLESS STEEL chains will be supplied with our tried and tested hardened carbon steel pins. Stainless steel option is available in single pin and **calibre** 2 pin ½" pitch chains.

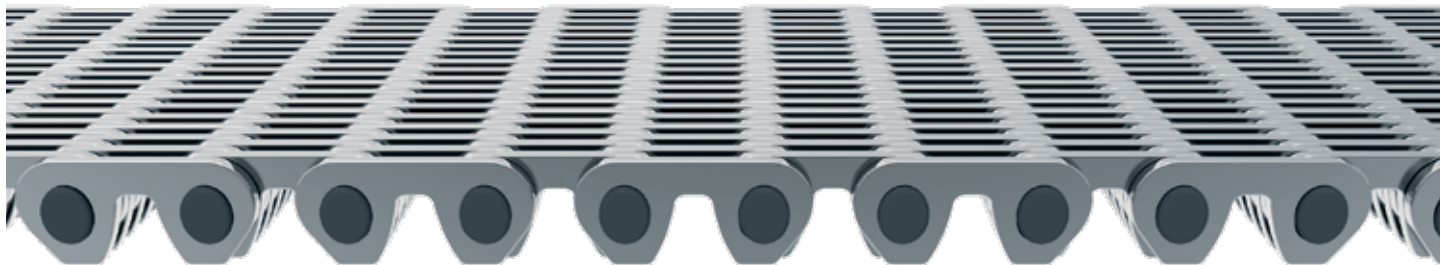
## Castle Link Chain - **CAS**



Pennine castle chain uses a specially designed link with a “castle” profile, reducing the contact area with the glass. This causes less heat transfer which reduces thermal shock especially on the base of flat, thick bottomed glass containers used in the cosmetic industry. Due to the design of the castle chain it is only recommended for use with glass containers without stippling to prevent stability issues. Castle chain can be supplied in all guide and assembly types and can be partnered with the Pennine HPL (Head Protector Link) system for maximum pin head protection. If stability is an issue, the castle link chain can also be supplied with a ground top surface. There is also a 10.2mm link height option available.

# 10.2 Low Profile + Ground Top

## 10.2 Low Profile Chain - 10.2



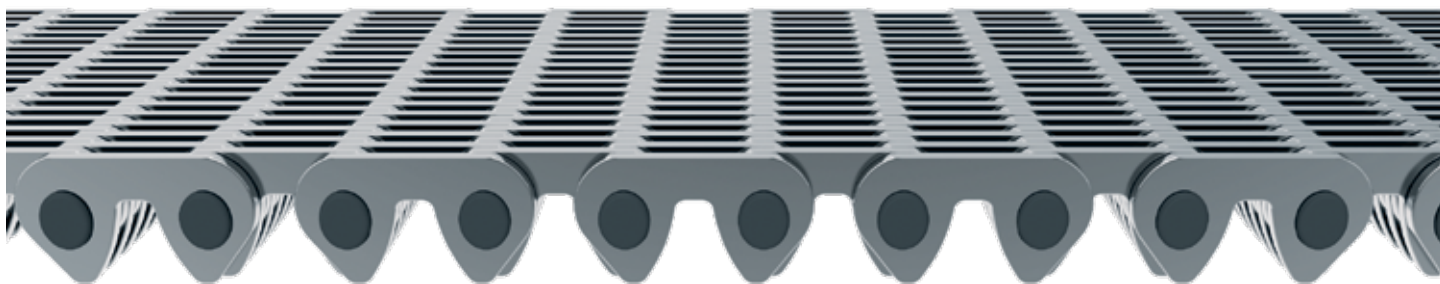
Pennine's Low Profile chain is the only Low Profile Chain available which benefits from the advantages of our Premium Conveyor Chain, incorporating links that are super flat and having link apertures with clean cut sides for reduced elongation and long life.

The advantages of Low Profile chains are flatter link bottoms which increase the surface contact with the wear plates; this reduces the speed at which the link height changes during its life.

10.2 Chains are regularly supplied as standard on some Italian produced IS machines and cross conveyors.

Low Profile 10.2mm high Chain is available in all designs of Centre Guide, Side Guide and Multi Guide in All Link, Link and Spacer and Double Assembly options. The part numbers for all Low Profile chains will have a suffix of 10.2.

## Ground Top Chain - GT



In addition to our standard range of chains, Pennine can also offer chains which are ground on one or both faces. The main versions of this type of chain are shown in the table below, the main reasons for choosing a particular type of chain being as follows:-

'GT' - To produce an even smoother, flatter surface for the transfer of glassware. This type of chain is especially good for small items such as perfume bottles.

'GTB' - To give a very accurate, constant, chain link height which is especially important when the chain is used on measuring, testing and inspection equipment, at the cold end of production.

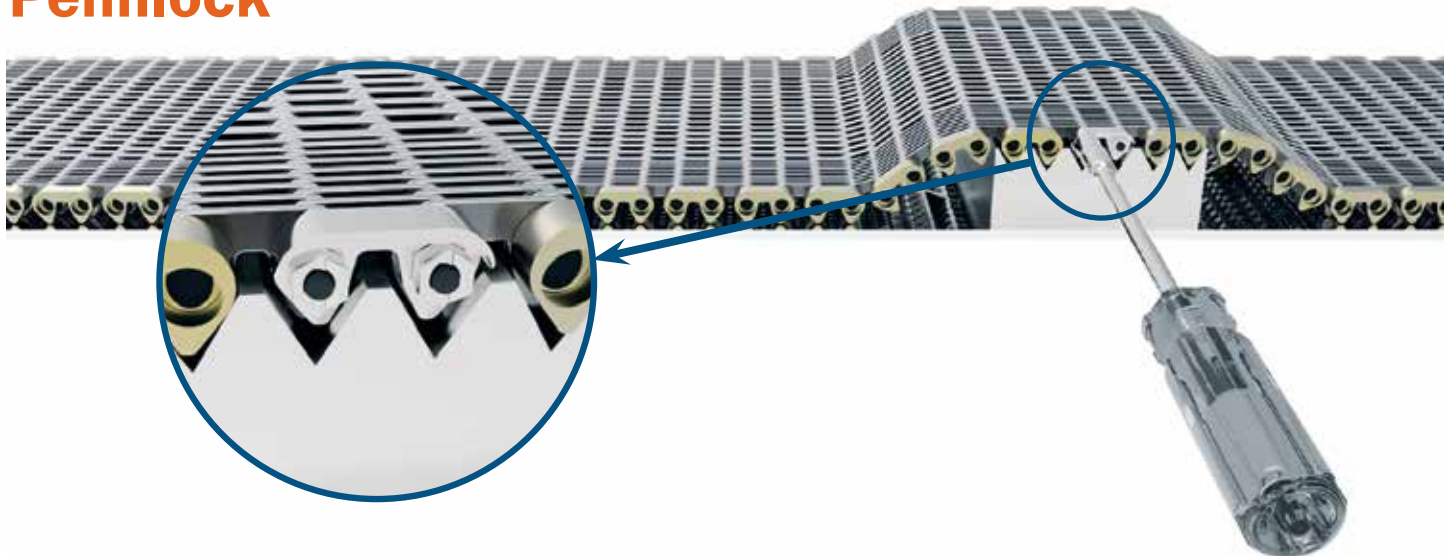
Suffix	Description	Height before grinding	Height after grinding
GT	Ground Top Calibre 2 Pin Chain	12.78 mm	12.51 mm
GT	Ground Top Standard Single Pin Chain	12.57 mm	12.30 mm
GT	Ground Top Standard 10.2mm Chain	10.20 mm	10.00 mm
GTB	Ground Top and Bottom Chain	TBC at time of order	TBC at time of order





# Pennlock + PennGuard

## Pennlock



Pennlock is an industry first rapid connecting system designed to reduce the time taken to join the chain while it is on the machine. Pennlock is suitable for any type of chain fitted with Thicker Type Head Protectors and offers a consistent chain running surface.

Pennlock can be purchased as a complete kit including hex nut driver, 10 pins, 10 special nuts and 5 caps, spares are also available.

## PennGuard - PG

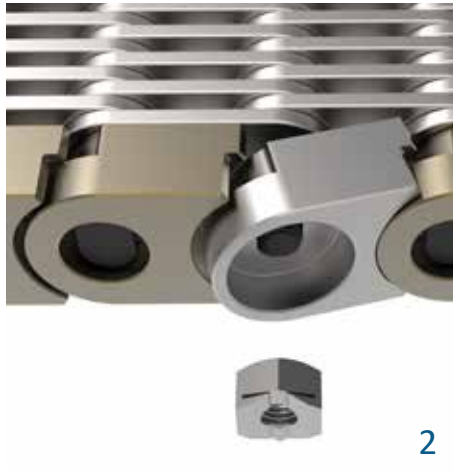


PennGuard is an optional extra that can be used with any of the Head Protector Links. PennGuard provides a completely flat running surface to provide seamless transfer of small and/or unstable ware. PennGuard is often combined with Ground Top for the most demanding of applications.



# SwiftLink + Steel Head Protector

## SwiftLink HPL - **SL**



Pennine Industrial Equipment are pleased to introduce a revolutionary new Head Protector - SwiftLink -

- Single pin operation
- Continuous running surface for transfer and wear, even on a joint in the chain
- Fastest connection system for silent chain requiring, no proprietary tools
- Available in chains of all widths, guides and assembly types
- Compatible with ground top and stainless steel chains



## High Strength Steel Head Protector - **HS**



Steel Head Protector created from solid C45 carbon steel has been designed to absorb impact that may cause normal Head Protector Links to fail. These Head Protector Links have been hardened to 45-50 HRC, exactly the same as the regular link plates used in the chain.

- Only available in centre guide type
- Only available on ½" pitch single pin chains



# Head Protector Links

## Solid THPL - DTHPL

The original THPL has been improving the performance of conveyor chain since 2002. THPLs can be fitted to one or both sides of Multi Guide chain of any assembly and can be fitted to centre guide chains with modified sprockets. Compatible with Pennlock



## Side Guide THPL - DTSHPL

Designed for use with Side Guide chains. With the TSHPL there is no need to modify existing Side Guide sprockets. TSHPLs can be fitted to one or both sides of side guide chains of any assembly type. Compatible with Pennlock



## Centre Guide THPL - DTCHPL

Designed for use with Centre Guide chains. There is no need to modify existing Centre Guide sprockets. TCHPLs can be fitted to one or both sides of Centre Guide chain of any assembly type. Compatible with Pennlock



The ORIGINAL Head Protection System designed by Pennine Industrial Equipment. Protect your chain with one of the many Head Protector Links available from Pennine Industrial Equipment.

UK Patent No. 1241117

Head protectors can be fitted to one or both sides of all single pin conveyor chains, please contact Pennine Industrial Equipment or your local representative for more information.

# Sprocket Part Number Guide

**P** **Z** **42i** **A** **S** **-** **205** **-** **96** **-** **45** **K14** **-** **G**

**P** Pennine

Z SNG600/3  
Y EN8D  
X EN24T  
W Cast iron

**42i** Number of teeth (involute)

A Flat sided  
B Boss one side  
C Casting  
D Boss both sides  
E Recessed both sides  
F Bearing bore both sides

B Bobbin Sprocket  
C Centre guide  
S Side guide  
M Multi guide

**205** Effective length

**96** Tooth length

**45** Bore

K14 Keyway  
S40 Integrated shaft

**G** Grub screw



Non Toothed Rollers

Centre Guide

Side Guide

Multi Guide

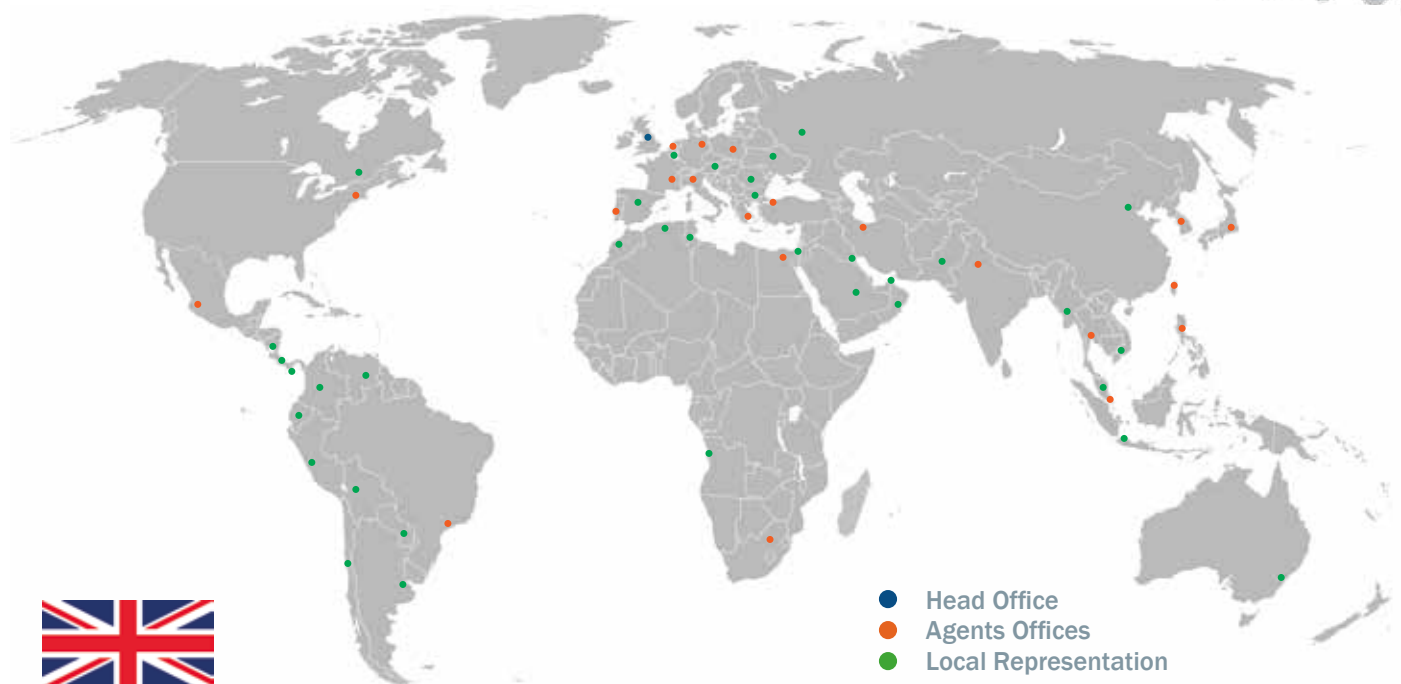




**PENNINE**



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