

GRINDING CHAINS

ORIGINAL
CYCLONE
TORNADO
3D



OPERATION & SAFETY MANUAL



⚠️ WARNING

These instructions are for your personal safety. Always ensure that you have read and understood these instructions before using any of the Picote range of Tools. *SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.*

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To watch practical demonstration videos, or to download an electronic copy of these instructions, please visit www.picotesolutions.com. Please note that videos are not intended as a replacement or alternative to this operating and safety manual, but only as an additional learning tool.

SAFETY INFORMATION



WARNING *This section contains important safety information. Failure to comply could result in serious injury or death.*

Safety Symbols

Safety symbols are used throughout this manual to draw attention to potential hazards.



Danger risk of serious injury, follow instructions.



Danger risk of serious injury from rotating parts, follow instructions.

Personal Protective Equipment (PPE)

Always use Personal Protective Equipment when using the Grinding Chains, including suitable overalls / protective clothing & footwear and the following:



Always wear suitable eye protection when using the Grinding Chains to prevent sewage, chemicals or dust from irritating your eyes.



Always wear suitable ear protection when using the Grinding Chains to prevent any hearing loss.



Always wear suitable heat and cut-resistant gloves when using the Grinding Chains to prevent any hand injuries. Any open injuries or skin irritations should be covered at all times to avoid contact with sewage, chemicals or dust.



Always wear a suitable respirator when using Grinding Chains to prevent any dust or fumes being inhaled or consumed, which can cause occupational asthma or dermatitis as well as eye irritation.

Always remember



Dust produced can be dangerous to your health, inflammable or explosive.

Make sure the pipe has been **opened** and **ventilated** to stop any gases forming in the lateral pipe where the work takes place.

Before assembly, use, replacement of parts or maintenance, unplug the Picote milling machine or your hand drill from its power socket.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

⚠ WARNING *This section contains important safety information. Failure to comply could result in serious injury or death.*

ENVIRONMENTAL

Storage Ambient Temperature Range: -20...60 °C (-4...140 °F) frost and condensation free

TRANSPORT

Picote tools should be transported in car or other vehicle properly secured to prevent any sudden movements caused by hard braking or accident. Using lidded boxes which are fastened and stored on the bottom of a van is recommended.

Never transport machine with tool attached to the shaft.

If using pick-up or trailer to transport Picote machine or tools, cover the products to protect them from raining water and dust.

STORAGE

It is recommended that tools are stored indoors protected from rain and sunlight and in constant ambient temperature.

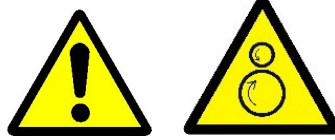
Clean used chains with fresh water after taken out from the pipe. Store in place where chains can dry out properly. Water exposure and attached dirt expose chains to rust.

DISPOSAL

Picote Grinding Chains can be recycled in metal waste collection points. Shaft outer casing can be recycled in plastic waste collection points.

Always follow the local waste handling rules and regulation.

! WARNING



AVAILABLE SIZES & POWER SOURCES

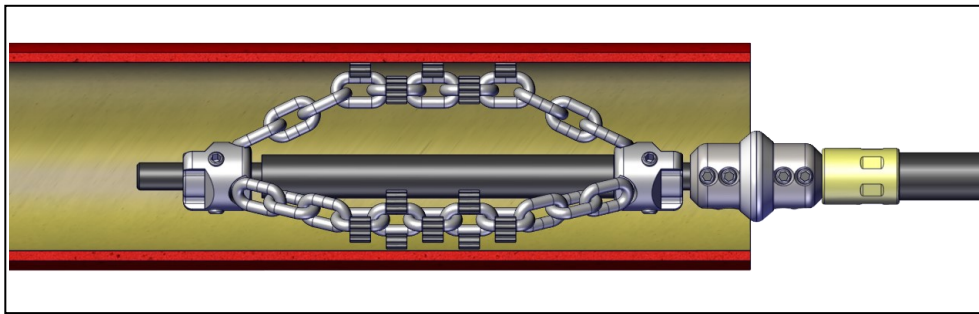
The Grinding Chains are the most common cleaning tools and can be used for a variety of different application purposes. Normal descaling operations in pipes usually include cleaning with chains. Selection of the correct type of chain will enable the operator to clear heavily blocked pipes, remove limescale, tree roots or even collapsed CIPP liner. Fitting a Special Drill head in front of the Original Chains allows the operator to remove heavy scale in pipes making cleaning even faster.

PVC chains do not have carbides on them so they can be safely used in plastic, pitch fibre or fragile pipes.

Selecting the correct Grinding Chain for the job

Select the correct Grinding Chain according to the condition, size and material of the original host pipe.

Place the tool completely inside the pipe before powering up the tool.



Pipe Size	Shaft size mm/inches	BEND 90°	BEND 45°
DN32 (1¼")	6 (¼")	YES	YES
DN50 (2")	8 (⅓")	YES	YES
DN70 (3")	8 (⅓"), 10 (⅔") & 12 (½")	YES	YES
DN100 (4")	8 (⅓"), 10 (⅔") & 12 (½")	YES	YES
DN125 (5") to DN150 (6")	8 (⅓"), 10 (⅔"), 12 (½") & 18 (¾")	YES	YES
DN200 (8")	12 (½") & 18 (¾")	YES	YES
DN225 (9")	12 (½") & 18 (¾")	YES	YES
DN250 (10")	12 (½") & 18 (¾")	YES	YES
DN300 (12")	18 (¾")	YES	YES

CHOOSING YOUR POWER SOURCE

The Grinding Chains have been designed for and can be operated with the **Picote Micro & Mini Miller** with 8mm ($\frac{1}{2}$ ") shaft or **Midi, Super Midi & Maxi Miller** with 12mm ($\frac{1}{2}$ ") shaft or **Maxi Miller Power+** with 18mm ($\frac{3}{4}$ "). The 8mm ($\frac{1}{2}$ "), 10mm ($\frac{2}{5}$ ") and 12mm ($\frac{1}{2}$ ") can also be operated with hand drill for lengths less than 10m (32ft).

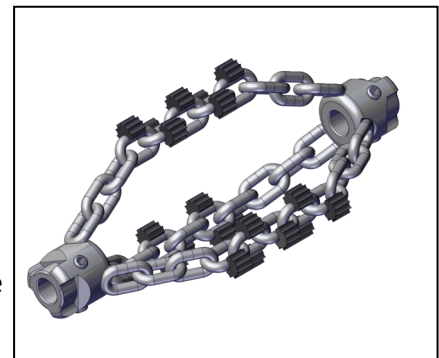
CHOOSING YOUR GRINDING CHAIN

Select the largest possible Grinding Chain for the job. There are two different designs of the grinding chains available, Original and Cyclone. It is recommended to start with the Original Chains to remove the scale and then use the Cyclone Chains to remove any heavy or stubborn deposits of scale. The Special Drill Head Cutters can be used in the front of Original Chains if the pipe is fully blocked, the scale is very thick or the pipe is full of tree roots. PVC Chains without carbides should be used in plastic, pitch fibre or fragile pipes. It is recommended to use only Cyclone Chains in very fragile pipes. If sections of the host pipe are missing, use only the Smart Spider or Smart Cutter™ for cleaning. As an alternative to the Grinding Chains you can use the Smart Sweepers which are effective tools to remove scale, roots or heavy grease.

AVAILABLE DESIGNS

The Original Chain

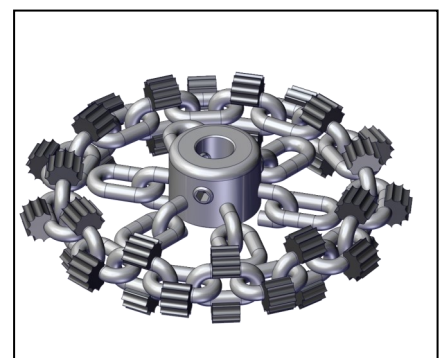
The Original Grinding Chains are attached to the shaft with two sockets. The opening of the chain can be adjusted according to the situation. The Original Chains should not exceed the internal diameter of the pipe by more than 5mm ($\frac{1}{4}$ "). It is the preferred tool to go inside the pipe during cleaning and it is preferable used for rough cleaning and to make space for larger tools.



It is recommended to mount the Original Chains onto a leader to enable faster tool change and prolong the service life of the flexible shaft. Original Chains can be used in conjunction with the Special Drill Head Cutter to easily cut into tough blockages such as tree roots, grease and tuberculation.

The Cyclone Chain

The Cyclone Chains are suitable for use in pipes that are in a bad state or even cracked. The centrifugal force is evenly distributed inside the pipe so it will not hit the sides. Easily removes hard materials, such as heavy scale, encrustation, tree roots and concrete.



The Cyclone is also used to eliminate any excess lining material after using a Twister Liner Remover to remove a collapsed lining from inside off cast iron pipes.

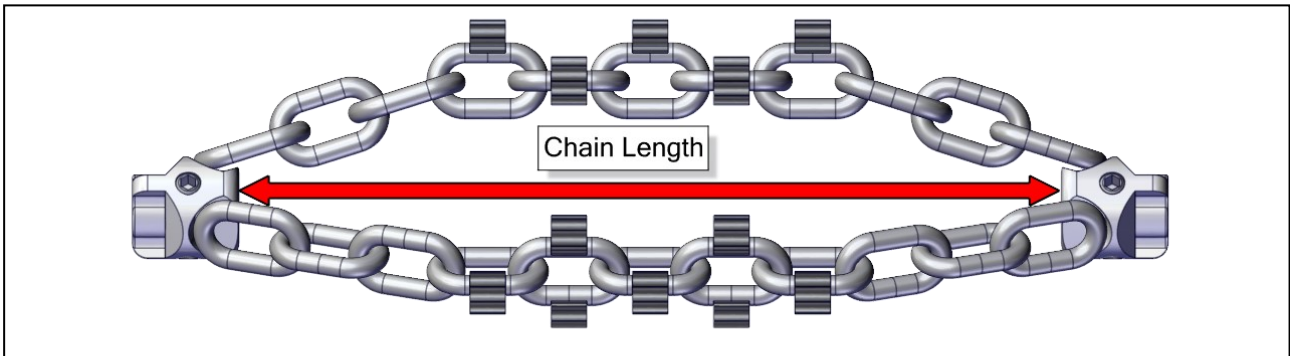
When cleaning pipes the Cyclone Chain is normally used after the Original Chain.



A TUTORIAL ON HOW TO MAKE PICOTE LEADERS IS AVAILABLE ON OUR YOUTUBE CHANNEL
www.youtube.com/PicoteSolutions

ORIGINAL CHAINS SIZE TABLE

Values presented in the table below have been measured in between the inner surfaces of both sockets as shown in picture.



ORIGINAL CHAINS

Pipe Diameter	Chain Length
DN32 (1¼")	40mm (1½")
DN50 (2")	50mm (2")
DN70 (3")	100mm (4")
DN100 (4")	150mm (6")
DN125 (5")	170mm (7")
DN150 (6")	190mm (8")
DN200 (8")	340mm (14")
DN250 (10")	460mm (18")
DN300 (12")	550mm (22")

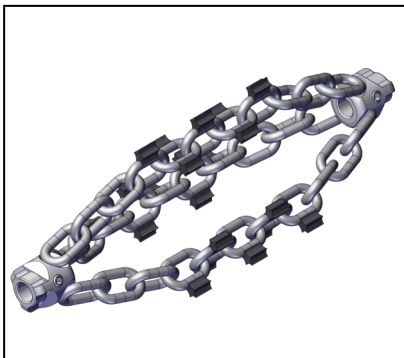
The actual length of individual Original Cleaning Chain may differ from the table values by approximately: $\pm 10\text{mm}$ (½").

AVAILABLE CHAIN TYPES

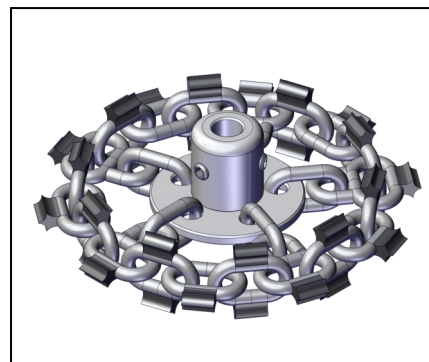
Standard Chains

The Standard Grinding Chains are equipped with star-shaped brazed hard metal bits (carbides) which enable fast pipe cleaning and a precise finish. For general cleaning the Standard Chains are highly regarded as the first choice of many technicians in cast iron pipes. Standard Chains can be used in conjunction with the Special Drill Head Cutter to easily cut into tough blockages such as tree roots, grease and tuberculation.

Benefits: Efficient and cost effective tool for normal cleaning and descaling. Improve your pipe cleaning results by using Cyclone after Original Chains. Finish off with the Picote Smart Cutter™.



Original Chains



Cyclone Chains

Pipe Size	Shaft size mm/inches
DN50 (2")	8 (1/3")
DN70 (3")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN100 (4")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN125 (5") to DN150 (6")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN200 (8")	12 (1/2")
DN225-DN250 (9"-10")	12 (1/2")

Pipe Size	Shaft size mm/inches
DN70 (3")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN100 (4")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN125 (5")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN150 (6")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN200 (8")	12 (1/2")
DN225 (9")	12 (1/2")
DN250 (10")	12 (1/2")



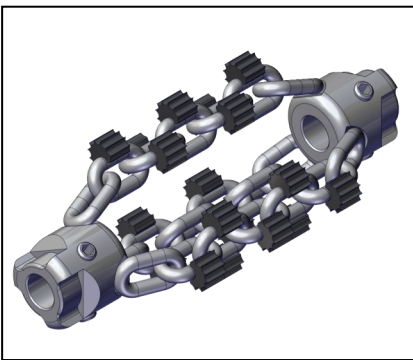
STANDARD CHAINS HAVE STAR-SHAPED CARBIDES

AVAILABLE CHAIN TYPES

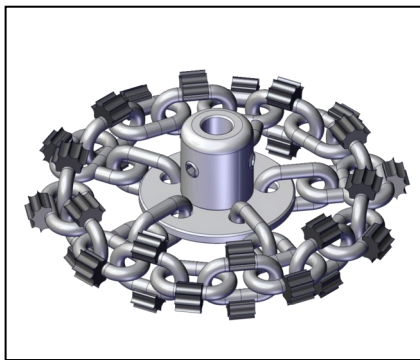
Premium Chains

An upgraded version of the Standard Chains, Premium Chains provide more efficiency, a smoother finish and improved durability. Larger carbide bits adhere better to the chain links and the heavier structure increases the impact toughness. Premium Chains are highly effective even in hard working situations such as lining removal. The Cyclone model works especially well to remove excess lining material, when used after the Smart Crusher or Twister Liner Removal tools. Original Premium Chains can be used in conjunction with the Special Drill Head Cutter to easily cut into tough blockages such as tree roots, grease and tuberculation.

Benefits: Larger carbide bits have greater joint strength compared to Standard Grinding Chains, thus improving the effectiveness of the chain throughout the servicing time.



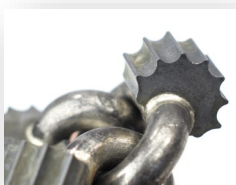
Original Chains



Cyclone Chains

Pipe Size	Shaft size mm/inches
DN50 (2")	8 (1/3")
DN70 (3")	8 (1/3") & 12 (1/2")
DN100 (4")	8 (1/3") & 12 (1/2")
DN125 (5") to DN150 (6")	8 / 1/3" & 12 / 1/2"
DN150 (6")	8 / 1/3" & 12 / 1/2" & 18 / 3/4"
DN200 (8")	12 / 1/2" & 18 / 3/4"
DN225 (9")	12 / 1/2" & 18 / 3/4"
DN250 (10")	12 / 1/2" & 18 / 3/4"
DN300 (12")	18 / 3/4"

Pipe Size	Shaft size mm/inches
DN70 (3")	8 (1/3") & 12 (1/2")
DN100 (4")	8 (1/3") & 12 (1/2") & 18 (3/4")
DN125 (5")	8 (1/3") & 12 (1/2") & 18 (3/4")
DN150 (6")	12 (1/2") & 18 (3/4")
DN200 (8")	12 (1/2") & 18 (3/4")
DN225 (9")	12 (1/2") & 18 (3/4")
DN250 (10")	12 (1/2") & 18 (3/4")
DN300 (12")	18 (3/4")



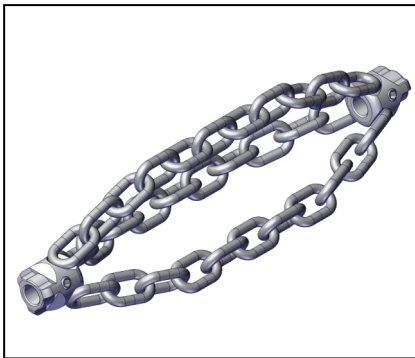
PREMIUM CHAINS HAVE CARBIDES COVERING A LARGER SURFACE AREA

AVAILABLE CHAIN TYPES

PVC Chains

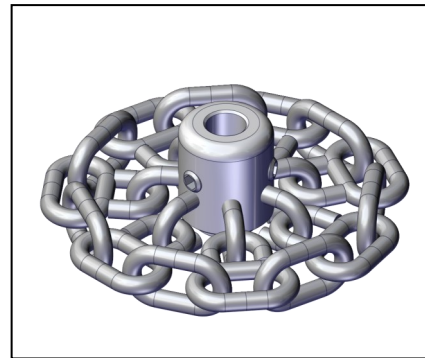
The PVC Chains have no carbides and are optimal cleaning tools inside plastic pipes if the pipe has not become brittle. They can also be used in fragile clay pipes. The PVC Chains can be used in conjunction with the Special Drill Head PVC Cutter to easily cut into tough blockages such as tree roots, grease and tuberculation.

Benefits: Chains without carbides are less aggressive thus enabling work inside plastic and fragile clay pipes.



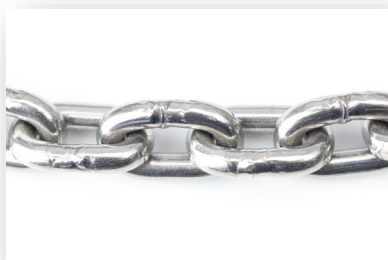
Original Chains

Pipe Size	Shaft size mm/inches
DN32 (1.1/4")	6 (1/4")
DN50 (2")	8 (1/3")
DN70 (3")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN100 (4")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN125 (5") to DN150 (6")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN200 (8")	12 (1/2")



Cyclone Chains

Pipe Size	Shaft size mm/inches
DN50 (2")	8 (1/3")
DN70 (3")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN100 (4")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN125 (5")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN150 (6")	8 (1/3"), 10 (2/5") & 12 (1/2")
DN200 (8")	12 (1/2")



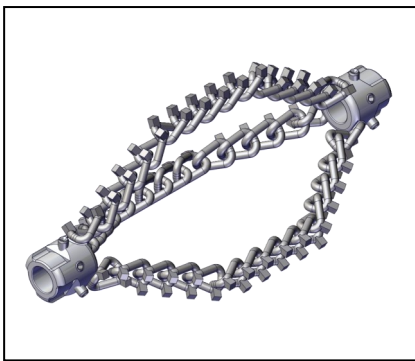
PVC CHAINS DO NOT HAVE ANY CARBIDES

AVAILABLE CHAIN TYPES

Tornado Chains

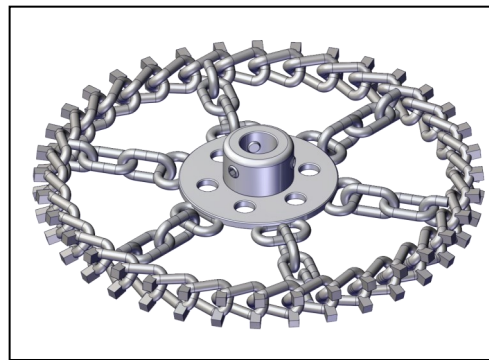
The heaviest Picote chain type. Only available for the **Maxi Miller Power+** for the removal of heavy scale. Welded steel bits do not fall apart during use and therefore these chains stay effective throughout its service life. The thick chain and high-strength steel guarantee that the chain links do not wear down easily. Recommended choice to use in normal cleaning purposes. Cannot be used for liner removal. Suitable to use in cast iron and clay pipes.

Benefits: The chain stays effective throughout its service life.



Original Chains

Pipe Size	Shaft size mm/inches
DN150 (6")	18 (3/4")
DN200 (8")	18 (3/4")
DN225 (9")	18 (3/4")
DN250 (10")	18 (3/4")
DN300 (12")	18 (3/4")



Cyclone Chains

Pipe Size	Shaft size mm/inches
DN150 (6")	18 (3/4")
DN200 (8")	18 (3/4")
DN225 (9")	18 (3/4")
DN250 (10")	18 (3/4")
DN300 (12")	18 (3/4")



TORNADO CHAINS HAVE DURABLE STEEL BITS

AVAILABLE CHAIN TYPES

3D Chains

Picote new patented innovation saves the user the trouble of adjusting the Original Chain length according to pipe size. The 3D chains can be inserted through a smaller pipe and then used to clean / descale a larger diameter pipe.

The 3D Chains are equipped with Picote Premium Chain carbides ensuring the greatest efficiency. Available also without carbides for PVC pipes.

Benefits: The chain adapts the pipe shape thus saving working during cleaning enabling the user to clean effectively over size changes of host pipe.



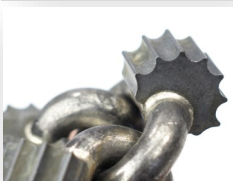
3D Chains

Pipe Size	Shaft size mm/inches
DN50 (2") to DN70 (3")	8 (1/3")
DN70 (3") to DN100 (4")	8 (1/3") & 12 (1/2")
DN100 (4") to DN150 (6")	12 (1/2")

NOTE! Always select rotation speed according to chain opening / rotation speed table from below when working inside fragile or otherwise brittle cast iron pipes. If the host pipe is intact, higher rotation speed can be used.

Operational Guide - rotation speed / chain opening

Chain mm/inches	Rotation speed	Shaft size mm/inches
DN50 (2") to DN70 (3")	Lev. 2—50 (2")	8 (1/3")
	Lev. 4—70 (3")	
DN70 (3") to DN100 (4")	Lev. 2—70 (3")	8 (1/3")
	Lev. 3—100 (4")	
DN70 (3") to DN100 (4")	800rpm—70 (3")	12 (1/2")
	1250rpm—100 (4")	
DN100 (4") to DN150 (6")	800rpm—100 (4")	12 (1/2")
	1100rpm—150 (6")	



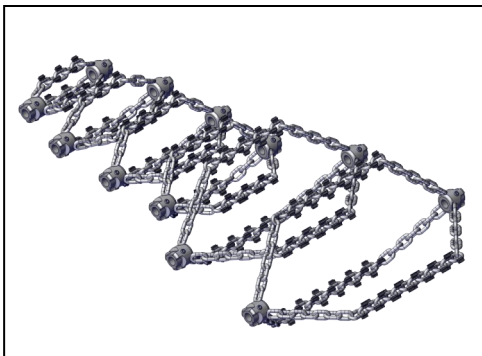
3D CHAIN AUTOMATICALLY ADAPTS TO THE PIPE DIAMETER

STANDARD GRINDING CHAINS RANGE & USE



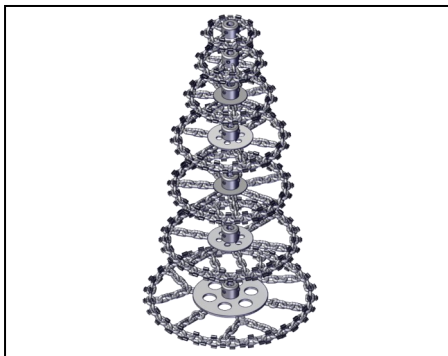
Please read safety information on page 3 before assembly and use.

Standard Original Chains



1380065032	Original Chain DN32 (1.¼") 6mm (¼") shaft
1380084050	Original Chain DN50 (2") 8mm (⅓") shaft
1380084070	Original Chain DN70 (3") 8mm (⅓") shaft
1380084100	Original Chain DN100 (4") 8mm (⅓") shaft
1380084150	Original Chain DN125 (5") to DN150 (6") 8mm (⅓") shaft
1380105070	Original Chain DN70 (3") 10mm (⅔")
1380105100	Original Chain DN100 (4") 10mm (⅔")
1380105150	Original Chain DN125 (5") to DN150 (6") 10mm (⅔")
1380125070	Original Chain DN70 (3") 12mm (½") shaft
1380125100	Original Chain DN100 (4") 12mm (½") shaft
1380125150	Original Chain DN125 (5") to DN150 (6") 12mm (½") shaft
1380125200	Original Chain DN200 (8") 12mm (½") shaft
1380125225	Original Chain DN225-DN250 (9"-10") 12mm (½") shaft

Standard Cyclone Chains



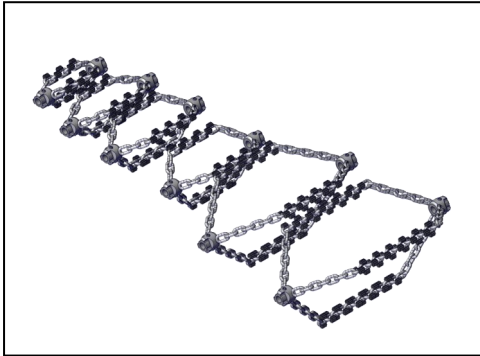
1381084070	Cyclone Circular Chain DN70 (2.¾") 8mm (⅓") shaft
1381084075	Cyclone Circular Chain DN75 (3") 8mm (⅓") shaft for USA
1381084100	Cyclone Circular Chain DN100 (4") 8mm (⅓") shaft
1381084125	Cyclone Circular Chain DN125 (5") 8mm (⅓") shaft
1381084150	Cyclone Circular Chain DN150 (6") 8mm (⅓") shaft
1381105070	Cyclone Circular Chain DN70 (3") 10mm (⅔") shaft
1381105100	Cyclone Circular Chain DN100 (4") 10mm (⅔") shaft
1381105125	Cyclone Circular Chain DN125 for 10mm (⅔") shaft
1381105150	Cyclone Circular Chain DN150 (6") for 10mm (⅔") shaft
1381125070	Cyclone Circular Chain DN70 (3") 12mm (½") shaft
1381125100	Cyclone Circular Chain DN100 (4") 12mm (½") shaft
1381125125	Cyclone Circular Chain DN125 (5") 12mm (½") shaft
1381125150	Cyclone Circular Chain DN150 (6") 12mm (½") shaft
1381125200	Cyclone Circular Chain DN200 (8") 12mm (½") shaft
1381125225	Cyclone Circular Chain DN225 (9") 12mm (½") shaft
1381125250	Cyclone Circular Chain DN250 (10") 12mm (½") shaft
1381125300	Cyclone Circular Chain DN300 (12") 12mm (½") shaft (available only for robot)

PREMIUM GRINDING CHAINS RANGE & USE



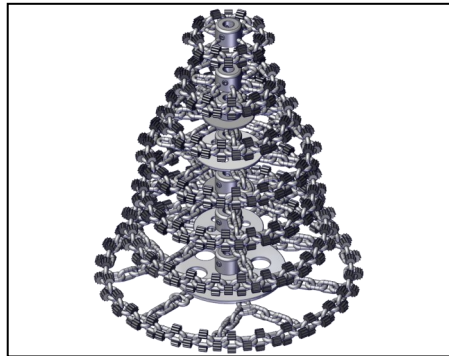
Please read safety information on page 3 before assembly and use.

Premium Original Chains



1380084050U	Original Premium DN50 (2") 8mm (1/3") shaft
1380084070U	Original Premium DN70 (3") 8mm (1/3") shaft
1380084100U	Original Premium DN100 (4") 8mm (1/3") shaft
1380084150U	Original Premium DN125 (5") to DN150 (6") 8mm (1/3") shaft
1380125070U	Original Premium DN70 (3") 12mm (1/2") shaft
1380125100U	Original Premium DN100 (4") 12mm (1/2") shaft
1380125150U	Original Premium DN125 (5") to DN150 (6") 12mm (1/2") shaft
1380125200U	Original Premium DN200 (8") 12mm (1/2") shaft
1380125225U	Original Premium DN225-DN250 (9"-10") 12mm (1/2") shaft
1380185100U	Original Premium DN100 (4") 18mm (3/4") - Maxi Miller Power+
1380185125U	Original Premium DN125 (5") 18mm (3/4") - Maxi Miller Power+
1380185150U	Original Premium DN150 (6") 18mm (3/4") - Maxi Miller Power+
1380185200U	Original Premium DN200 (8") 18mm (3/4") - Maxi Miller Power+
1380185250U	Original Premium DN225-DN250 (9"-10") 18mm (3/4") - Maxi Miller Power+
1380185300U	Original Premium DN300 (12") 18mm (3/4") - Maxi Miller Power+

Premium Cyclone Chains



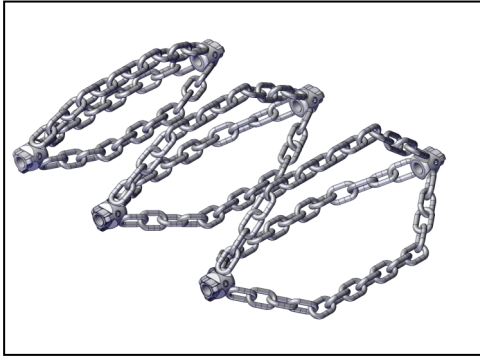
1381084075U	Cyclone Premium DN75 (3") 8mm (1/3") shaft for USA
1381084070U	Cyclone Premium DN70 (2.3/4") 8mm (1/3") shaft
1381084100U	Cyclone Premium DN100 (4") 8mm (1/3") shaft
1381084125U	Cyclone Premium DN125 (5") 8mm (1/3") shaft
1381125075U	Cyclone Premium DN75 (3") for 12mm (1/2") shaft USA
1381125070U	Cyclone Premium DN70 (3") 12mm (1/2") shaft
1381125100U	Cyclone Premium DN100 (4") 12mm (1/2") shaft
1381125125U	Cyclone Premium DN125 (5") 12mm (1/2") shaft
1381125150U	Cyclone Premium DN150 (6") 12mm (1/2") shaft
1381125200U	Cyclone Premium DN200 (8") 12mm (1/2") shaft
1381125225U	Cyclone Premium DN225 (9") 12mm (1/2") shaft
1381125250U	Cyclone Premium DN250 (10") 12mm (1/2") shaft
1381125300U	Cyclone Premium DN300 (12") 12mm (1/2") shaft (available only for robot)
1381185100U	Cyclone Premium DN100 (4") 18mm (3/4") - Maxi Miller Power+
1381185125U	Cyclone Premium DN125 (5") 18mm (3/4") - Maxi Miller Power+
1381185150U	Cyclone Premium DN150 (6") 18mm (3/4") - Maxi Miller Power+
1381185200U	Cyclone Premium DN200 (8") 18mm (3/4") - Maxi Miller Power+
1381185225U	Cyclone Premium DN225 (9") 18mm (3/4") - Maxi Miller Power+
1381185250U	Cyclone Premium DN250 (10") 18mm (3/4") - Maxi Miller Power+
1381185300U	Cyclone Premium DN300 (12") 18mm (3/4") - Maxi Miller Power+

PVC GRINDING CHAINS RANGE & USE



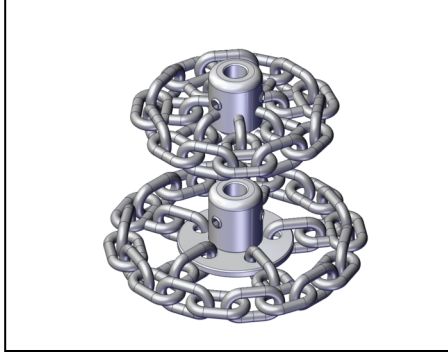
Please read safety information on page 3 before assembly and use.

PVC Original Chains



1380084050P	Original Chain DN50 (2") 8mm (1/3") shaft for PVC pipes
1380084070P	Original Chain DN70 (3") 8mm (1/3") shaft for PVC pipes
1380084100P	Original Chain DN100 (4") 8mm (1/3") shaft for PVC pipes
1380084150P	Original Chain DN125 (5") to DN150 (6") 8mm (1/3") shaft for PVC pipes
1380105070P	Original Chain DN70 (3") for 10mm (2/5") shaft for PVC pipes
1380105100P	Original Chain DN100 (4") for 10mm (2/5") shaft for PVC pipes
1380105150P	Original Chain DN125 (5") to DN150 (6") for 10mm (2/5") shaft for PVC pipes
1380125100P	Original Chain DN100 (4") 12mm (1/2") shaft for PVC pipes
1380125150P	Original Chain DN125 (5") to DN150 (6") 12mm (1/2") shaft for PVC pipes
1380125200P	Original Chain DN200 (8") 12mm (1/2") shaft for PVC pipes

PVC Cyclone Chains



1381084070P	Cyclone Chain DN70 (2.3/4") 8mm (1/3") shaft for PVC pipes
1381084075P	Cyclone Chain DN75 (3") 8mm (1/3") shaft for PVC pipes for USA
1381084100P	Cyclone Chain DN100 (4") 8mm (1/3") shaft for PVC pipes
1381084125P	Cyclone Chain DN125 (5") 8mm (1/3") shaft for PVC pipes
1381105070P	Cyclone Chain DN70 for 10mm (2/5") shaft for PVC pipes
1381105100P	Cyclone Chain DN100 for 10mm (2/5") shaft for PVC pipes
1381105125P	Cyclone Chain DN125 for 10mm (2/5") shaft for PVC pipes
1381105150P	Cyclone Chain DN150 for 10mm (2/5") shaft for PVC pipes
1381125075P	Cyclone Chain DN75 (3") 12mm (1/2") shaft for PVC pipes
1381125100P	Cyclone Chain DN100 (4") 12mm (1/2") shaft for PVC pipes
1381125125P	Cyclone Chain DN125 (5") 12mm (1/2") shaft for PVC pipes
1381125150P	Cyclone Chain DN150 (6") 12mm (1/2") shaft for PVC pipes
1381125200P	Cyclone Chain DN200 (8") 12mm (1/2") shaft for PVC pipes

3D CHAINS RANGE & USE



Please read safety information on page 3 before assembly and use.

3D Chains



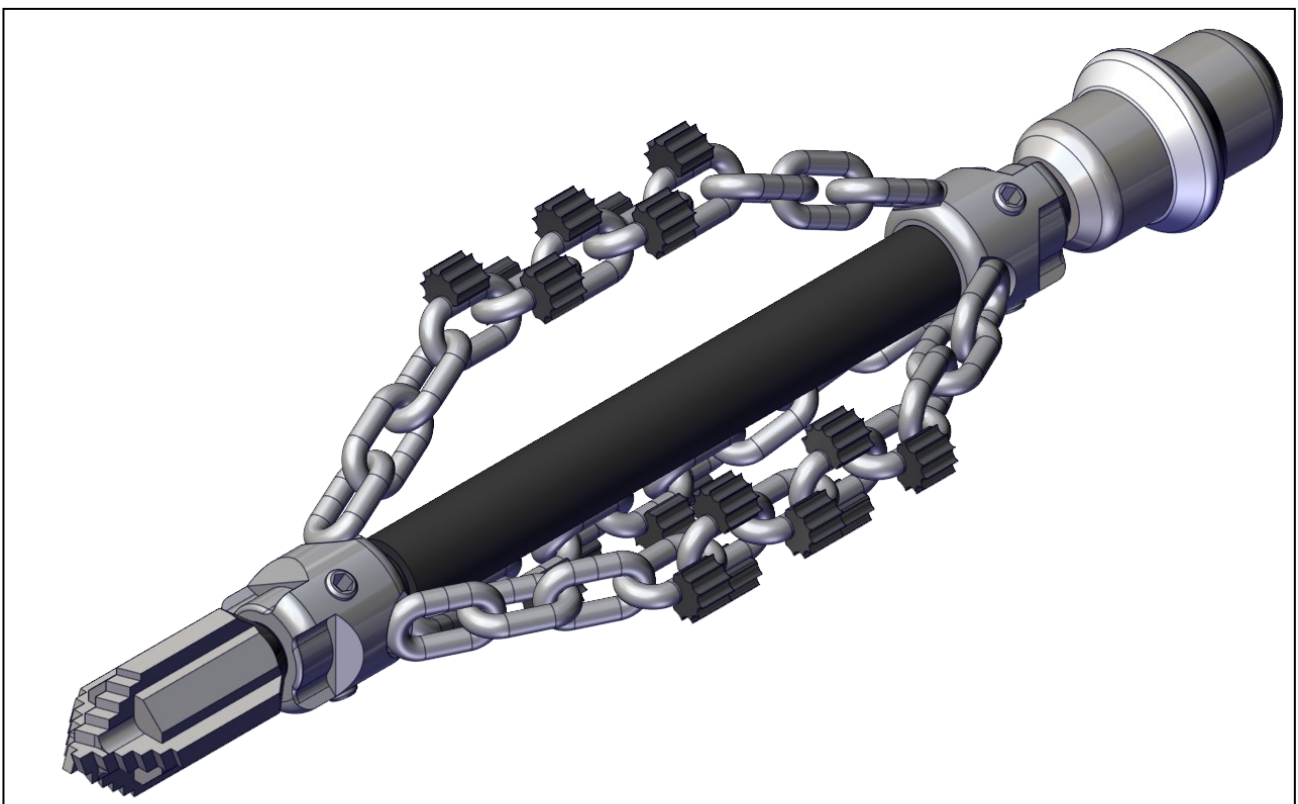
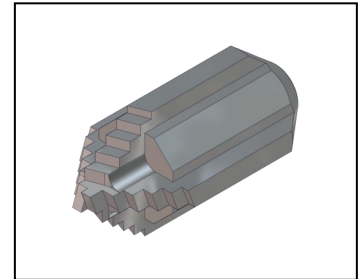
1382005070	3D Premium Chain DN50-70 8mm
1382005070P	3D PVC Chain DN50-70 8mm
1382070100	3D Premium Chain DN70-100 8mm
1382070100P	3D PVC Chain DN70-100 8mm
1383070100	3D Premium Chain DN70-100 12mm
1383070100P	3D PVC Chain DN70-100 12mm
1383100150	3D Premium Chain DN100-150 12mm

USER GUIDE: Combining Special Drill Head and Original Chain on 12mm Shaft



The Special Drill Head can be used in the front of Original Chains on **12mm shaft** to create a tool which can progress forward even in badly corroded or heavily scaled pipes. This combination is also very effective at removing roots.

Operate carefully as this combination makes cleaning work much more strenuous on the Millers and the safety clutch may engage more frequently.

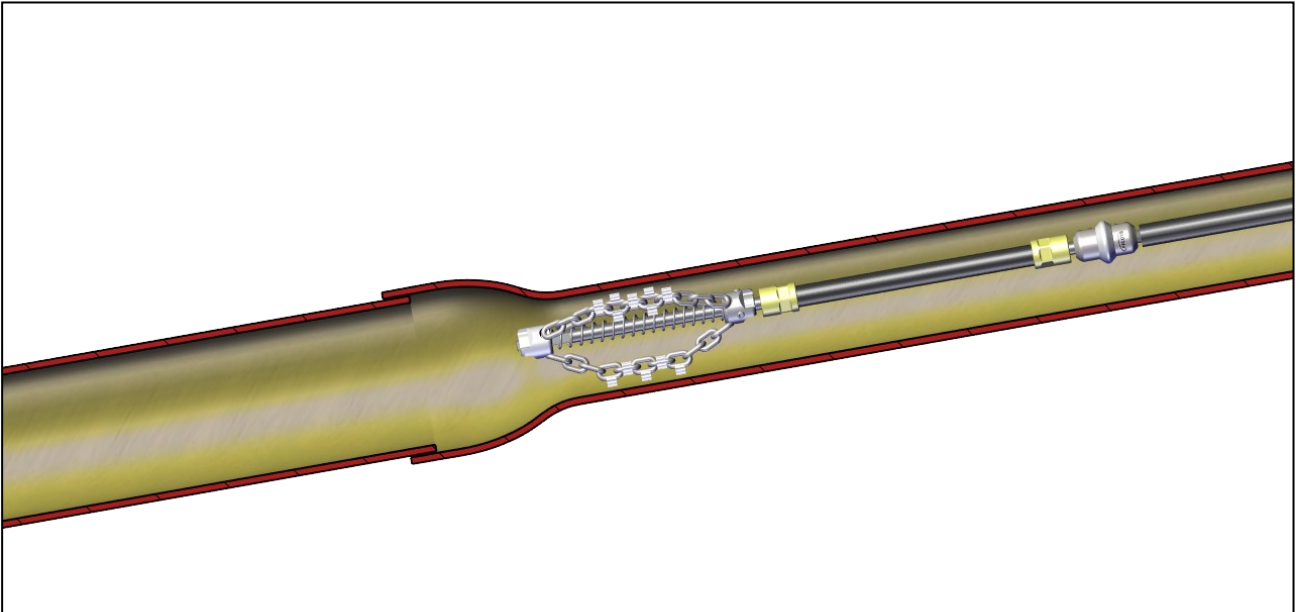


USER GUIDE: Using 3D Chain

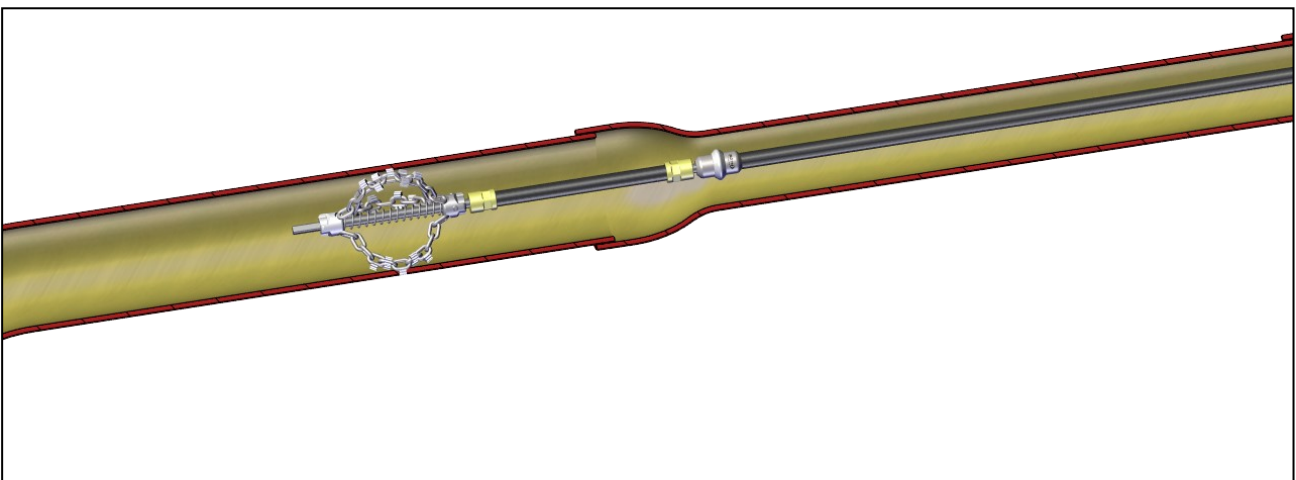


The 3D Chain adapts its size **according to rotation speed and the host pipe size**. Therefore the operator can easily clean the pipe with size changes or heavy scale without need to change the tool during the cleaning work. The process is presented below.

3D Chain operated over size change.



After moving to larger pipe the grinding chain opens up automatically. If the host pipe is fragile, please refer rotation speed / chain opening guide on page 11.





Using Grinding Chains

Before work

Select the Grinding Chain according to the condition, size and material of the original host pipe. Make sure that the Original Chain opens up completely and the Sockets are aligned. Always select the PVC Chain when working inside the plastic, pitch fibre or fragile pipes. Ventilate the working site properly. Ensure that the pipes are grounded / earthed. Use a CCTV camera to observe your work.

Ensure water is flowing in the pipe or the vacuum extraction is ready (dry cleaning). Place the Grinding Chains completely inside the pipe before starting the machine. Grinding chains are a highly efficient tool to clean pipes. Although it is possible to perform dry grinding if necessary, it is advised that you use water when grinding with chains. This flushes out all of the debris while you work and prevents build-up of debris or blockages resulting from such a build-up.

During use

Turn the power on. Move the tool constantly in a back and forth movement during use. Where possible, start cleaning the pipe from the far end, in about 1m (3,2ft) sections, back towards the machine. After each section is cleaned, continue the cleaning process in next section. Always use CCTV camera inside the pipe to observe your progress. Adjust the speed while working. Hold shaft tightly. Be especially careful when working in plastic pipes or cleaning tight bends. The Grinding Chains can quickly generate enough friction heat that the plastic pipe could melt if the tool is not moved back and forth continuously. **When using the chains to remove lining material the friction heat could potentially ignite a fire if the debris is not constantly removed.** In heavily scaled pipes, it is recommended to begin the work with Original Chain and continue with Cyclone Chain. You can use the Smart Cutter™ to finalise the cleaning result.



Please read safety information on page 3 before assembly and use.

Do not push the tool with great force—let the tool do the work. If excessive force or high speeds are used the tool might get stuck or break the tool, shaft or the pipe. Use either water or vacuum to remove debris.

If water cooling is not used, have breaks after every 30 minutes of work. The tool head gets very hot during use when not water cooled. Touch only with heat resistant gloves. Tool can be cooled down with water or let it cool in fresh air. Observe the outer casing temperature and let the Miller to cool down at every 30 minute periods of constant work.



USING GRINDING CHAINS

AFTER USE

Be careful when removing the tool from the pipe as the tool can be very hot. Always turn the power off before you remove the tool out from the pipe! There is a risk of serious injury or even death!

Check out the condition of the tool and shaft. Replace worn-out parts. If part of the shaft is damaged, it can be removed using a disc cutter/angle grinder - shorten outer casing accordingly.

The Grinding Chains can be operated as long as the chain links are solid and most of the carbides still attached.



RECOMMENDATIONS

Make sure that Original Chain can open completely.

The first tool inside the pipe when cleaning should be the Original Chain followed by the Cyclone Chain. To ensure the perfect finish use the Smart Cutter™ to finalise the cleaning result.

Do not power up the Grinding Chain outside of the pipe!

The tool needs to fit completely inside the pipe before use.

Select the correct size and type of Grinding Chain for the pipe.

Always use a CCTV camera while working.

Move the tool constantly back and forth while cleaning. Be especially careful when working in plastic pipes as the friction heat can quickly melt the pipe .

Create Leaders for the Original Chains to enable quick tool changes and extend the service life of the flexible shaft.

Use Special Drill Head Cutters in front of Original Chains in heavily scaled pipes.

Please read safety information on page 3 before assembly and use.

MAINTENANCE



CARING FOR THE FLEXIBLE SHAFT

The flexible shaft is pre-treated with **The Picote Flexible Shaft Lubricant (135000020)** and the casing replaced prior to shipping. Always inspect the condition and apply lubricant between the flexible shaft and its outer casing when required. If necessary remove the shaft from its casing to treat. When the casing has been replaced, rotate manually for even coverage.



INSPECTION OF THE CHAINS

The Grinding Chain can still be used if most of the carbides are attached. Check the condition of the chain links regularly. If the Grinding Chain links are worn or are cracked, the Grinding Chain needs to be changed.

FASTENER SCREWS

If you are unable to tighten the fastener screws properly, due to worn out hex socket heads, replace the fastener screws immediately. Otherwise, a Grinding Chain can fall into the pipe while working.



TRAINING

For information about product training and support contact Picote Solutions: training@picotesolutions.com or contact your authorised Picote Reseller.



TUTORIALS ARE AVAILABLE ON OUR YOUTUBE CHANNEL
www.youtube.com/PicoteSolutions

PRACTICAL TIPS & SAFETY ADVICE

Here are some useful tips on how to get the most out of your Picote system. Always use the recommended tools for maintenance to avoid personal injury.



CUTTING THE FLEXIBLE SHAFT



Always inspect the flexible shaft before each use. If there are potential weak points or the shaft is damaged, cut off the damaged length using a band saw.



SHAFT ROUNDER



The shaft rounder smooths the end of the flexible shaft, preventing the user from being cut by the otherwise sharp metal edge.



ATTACHING A SHAFT SOCKET



Feed the shaft through the socket to the end and **securely fasten**. The outer casing should reach all the way to the base of the shaft socket to protect the shaft.

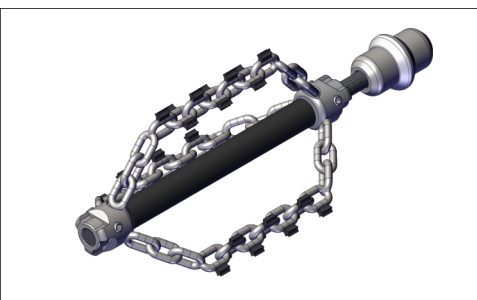
ADDING A VISUAL MARKER FOR SAFETY



Attach a visual marker (tape) to the outer casing of the flexible shaft. Place it around half a metre from the end point of the shaft. The mark will indicate the chain's location and prevent possible injuries when the Pipe Cutter is removed from the pipe, including injury by rotating parts.



CREATING LEADERS



You can extend the life of the flexible shaft and increase productivity on site by making individual leaders for the most commonly used tools. This way you easily and quickly switch between tooling.

WARRANTY POLICY AND PROCEDURE

Limited Warranty:

Picote warrants to the original End User that the Product purchased by such End User will operate in accordance with and substantially conform to their published specifications when shipped or otherwise delivered to the End User and for a period of one (1) year, except electric motors for which the warranty period shall be six (6) months, provided, however, that Picote does not warrant any claim or damage under this

Warranty if such claim or damage results from:

1. Consumable parts or normal wear and tear resulting from use of the Products,
2. Product overload or overheated motor,
3. Regular periodic maintenance of Products,
4. Misuse, neglect, or improper installation or maintenance of the Products, or use of Products not for their intended purpose,
5. Products that have been altered, modified, repaired, opened or tampered with by anyone other than Picote or an authorized Picote Service Centre, or unsuitable or unauthorized spare parts, accessories or third party products when using the Products or;
6. the use of the Products not in compliance with their respective Documentation, user manuals, safety and maintenance instructions, and any usage restrictions contained therein, or
7. accident, fire, power failure, power surge, or other hazard.

Otherwise, the Products are sold AS IS. End User is responsible for using the Products within their specifications and instructions as contained in the Documentation.

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