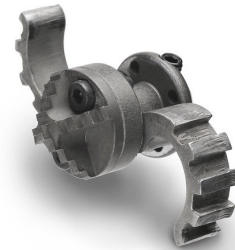




SMART SPIDER & MINI SMART SWEEPER

OPERATION & SAFETY MANUAL



WARNING

These instructions are for your personal safety. Always ensure that you have read and understood these instructions before using the equipment.

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

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SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

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

SAFETY INFORMATION

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.

Safety Symbols

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



Danger risk of serious injury or death by electrocution, follow instructions.



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



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



Danger do not touch. Risk of injury, follow instructions.

Personal Protective Equipment (PPE)

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



Suitable eye protection to protect against injuries and chemicals from irritating eyes.



Suitable heat resistant gloves. Do not use gloves which can become entangled.



Suitable respirator to prevent any dust or fumes being inhaled or consumed, which could cause occupational asthma or dermatitis.



Suitable ear protection to protect against hearing loss.

ENVIRONMENT, TRANSPORT, STORAGE & DISPOSAL

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

ENVIRONMENT

Operational Ambient Temperature Range: 0°C to +50°C (32 to 122°F)

Storage Ambient Temperature Range: -20°C to +50°C (-4 to 122°F)

Condensation Free

TRANSPORT

Picote Smart tools should be transported inside of a 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 the vehicle is recommended.

Never transport Picote Millers with tooling attached to the shaft.

STORAGE

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

Clean used tools with fresh water after being removed from the pipe. Store them in a place where the tools can dry out properly. Water exposure and attached dirt expose the tools to rust.

DISPOSAL

The tools can be disposed of in metal waste collection point. Always follow local waste handling rules and regulations.

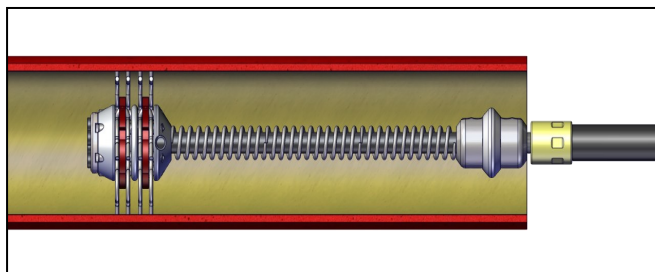
GENERAL INFORMATION

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

AVAILABLE TYPES AND SIZES

The Smart Spider: Is a special tool for cleaning fragile or damaged pipes. The Smart Spider can go through pipes where sections of the pipe are missing, without getting stuck. As the tool rotates the Smart Spider legs adapt to the diameter of the pipe. The Smart Spider can also be used also in plastic pipes, however, it it must be used with extra care. It is also effective in removing build-ups of Fats, Oil and Grease (FOG's).

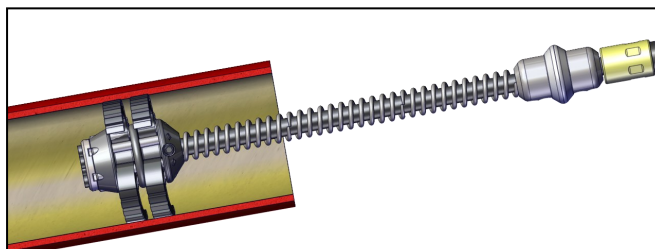
NOTE: The legs on the spider are designed to be larger than the inside of the pipe so that the tool stays centralised and will not fall out . **Do not trim the legs back to fit the tool inside of the pipe as the tool will fall through the missing sections.**



Smart Spider

The Mini Smart Sweeper: Is a special tool designed to clean pipes. They can be used as a substitute for Grinding Chains. The Smart Sweeper is more aggressive compared to Grinding Chains and is effective in situations where there is thick lime scale or other waste materials which are hard to remove. It is also an effective tool for the removal of tree roots. The Mini Smart Sweeper can also be used to remove excess lining material from the pipe wall after the failed lining has been removed using the Twister Liner Remover tool or Tiger Twister Liner and Concrete Remover tool. Like the Smart Spider the legs will centralise the tool in the pipe. **NOTE:** The Smart Sweeper+ products, which have been designed purely for lining removal work for the Maxi Miller Power+ have their own manual.

Mini Sweeper tools are self-centralising and will open up to meet the pipe walls when rotated.



Mini Smart Sweeper

GENERAL INFORMATION

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

AVAILABLE TYPES AND SIZES

Choosing the correct Smart Spider and Mini Smart Sweeper for the job

Select the correct tool according to the size of the host pipe.

SPECIAL DRILL HEAD / BORE	Shaft size mm/inches	90° BEND	45° BEND
Smart Spider DN100 (4")	10, 12 ($\frac{3}{8}$, $\frac{1}{2}$ ")	YES	YES
Smart Spider DN150 (6")	10, 12 ($\frac{3}{8}$, $\frac{1}{2}$ ")	YES	YES
Mini Smart Sweeper DN40 - 50 (1.½- 2")	8, 10 ($\frac{1}{3}$, $\frac{3}{8}$ ")	YES	YES
Mini Smart Sweeper DN70 - 75 (3")	8, 10 ($\frac{1}{3}$, $\frac{3}{8}$ ")	YES	YES
Mini Smart Sweeper DN100 (4")	10, 12 ($\frac{3}{8}$, $\frac{1}{2}$ ")	YES	YES

- The Mini Smart Sweeper with the 8mm ($\frac{1}{3}$ ") diameter shaft can be operated with the **Picote Mini Cleaner, Mini Miller, Battery Super Mini Cleaner, Battery Super Mini Miller** machines.
- The Smart Spider and Mini Smart Sweeper with the 10mm ($\frac{3}{8}$ ") diameter shaft, have been designed for and can be operated with the **Picote Midi Cleaner** machine.
- The Smart Spider and Mini Smart Sweeper with the 12mm ($\frac{1}{2}$ ") diameter shaft, have been designed for and can be operated with the **Picote Super Midi & Maxi Miller** machines.

SMART SPIDER / MINI SMART SWEEPER: US

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE



Smart Spider

For descaling damaged pipes with missing bottoms or holes where typical chains or other descaling methods may be too aggressive, get stuck in the missing sections or holes, or can come out from the pipe. Also good for Fats, Oils & Grease (FOGs). Also great for jumping damaged pipe sections with a CCTV camera attached to the shaft to fully inspect damaged pipe runs.

Product #	Pipe Size	Shaft Size
1390105102	4"	3/8"
1390105152	6"	3/8"
1390125102	4"	1/2"
1390125152	6"	1/2"

Product #	Part
1390100001	Smart Spider 4" Legs
1390100002	Smart Spider 6" Legs
1390100005	Smart Spider Rubber Flex
1390100004	Smart Spider Axle



Mini Smart Sweeper

When in doubt, get the Sweeper out! Versatile and rebuildable tool for tough cleaning scenarios including tuberculation, roots, calcite, & mineral/uranic scale in cast iron, concrete, clay, & PVC pipes. 4" models include Spring Leader.

Product #	Pipe Size	Shaft Size
1360080050	1.5"-2"	1/3"
1360080075	3"	1/3"
1360100050	2"	3/8"
1360100075	3"	3/8"
1360100100	4"	3/8"
1360120100	4"	1/2"

Product #	Part
1360120101	Smart Sweeper Head 4"
1000200025	Hub Disc for Mini Smart Sweeper 2"
1360080002	Hub Disc for Mini Smart Sweeper 3"
1390125001	Hub Disc for Mini Smart Sweeper 4" & Smart Spider 4" & 6"
900000935	Mini Smart Sweeper Leg 2"
900000942	Mini Smart Sweeper Leg 3"
900000938	Mini Smart Sweeper Leg 4"
1300212025	Front Drill Head 1" for Mini Smart Sweeper 2"
1300214042	Front Drill Head 4 Flat 1.57"-2" for Mini Smart Sweeper 3"

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE



Smart Spider

For descaling damaged pipes with missing bottoms or holes where typical chains or other descaling methods may be too aggressive, get stuck in the missing sections or holes, or can come out from the pipe. Also good for Fats, Oils & Grease (FOGs). Also great for jumping damaged pipe sections with a CCTV camera attached to the shaft to fully inspect damaged pipe runs

Product #	Pipe Size	Shaft Size
1390105102	DN100	10mm
1390105152	DN150	10mm
1390125102	DN100	12mm
1390125152	DN150	12mm

Product #	Part
1390100001	Smart Spider DN100 Legs
1390100002	Smart Spider DN150 Legs
1390100005	Smart Spider Rubber Flex
1390100004	Smart Spider Axle



Mini Smart Sweeper

When in doubt, get the Sweeper out! Versatile and rebuildable tool for tough cleaning scenarios including tuberculation, roots, calcite, & mineral/uranic scale in cast iron, concrete, clay, & PVC pipes. DN100 models include Spring Leader.

Product #	Pipe Size	Shaft Size
1360080050	DN40-50	8mm
1360080075	DN70-75	8mm
1360100050	DN50	10mm
1360100075	DN70	10mm
1360100100	DN100	10mm
1360120100	DN100	12mm

Product #	Part
1360120101	Smart Sweeper Head DN100
1000200025	Hub Disc for Smart Sweeper DN50
1360080002	Hub Disc for Smart Sweeper DN70-75
1390125001	Hub Disc for Smart Sweeper DN100 & Smart Spider DN100 & DN150
900000935	Mini Sweeper Leg DN50
900000942	Mini Sweeper Leg DN70
900000938	Mini Sweeper Leg DN100
1300212025	Front Drill Head 25mm for Smart Sweeper DN50
1300214042	Front Drill Head 40mm for Smart Sweeper DN70

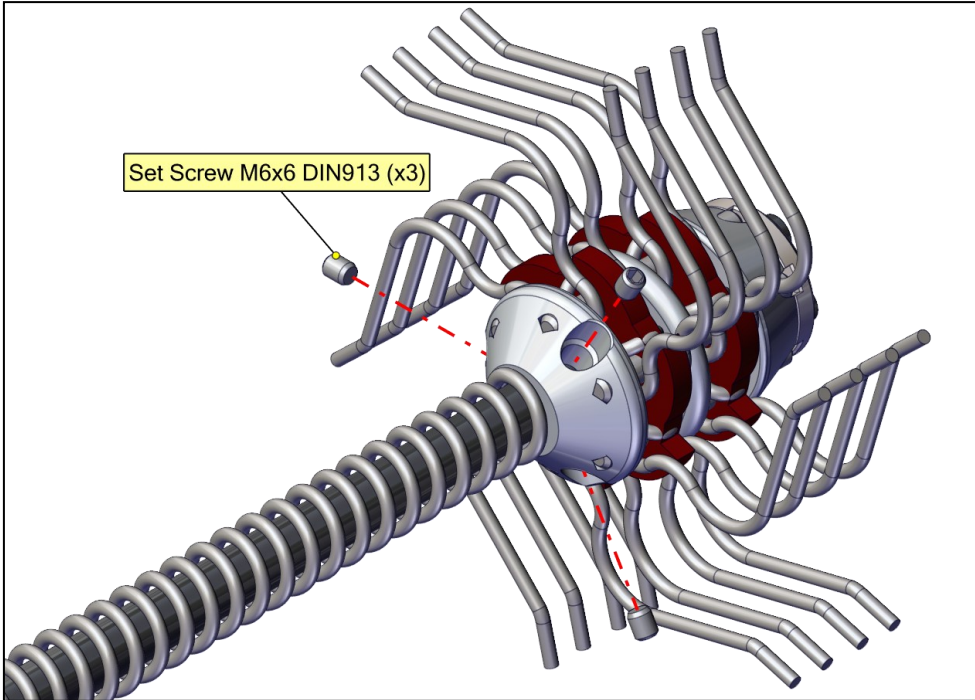
TOOL HEAD REPLACEMENT - SMART SPIDER

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

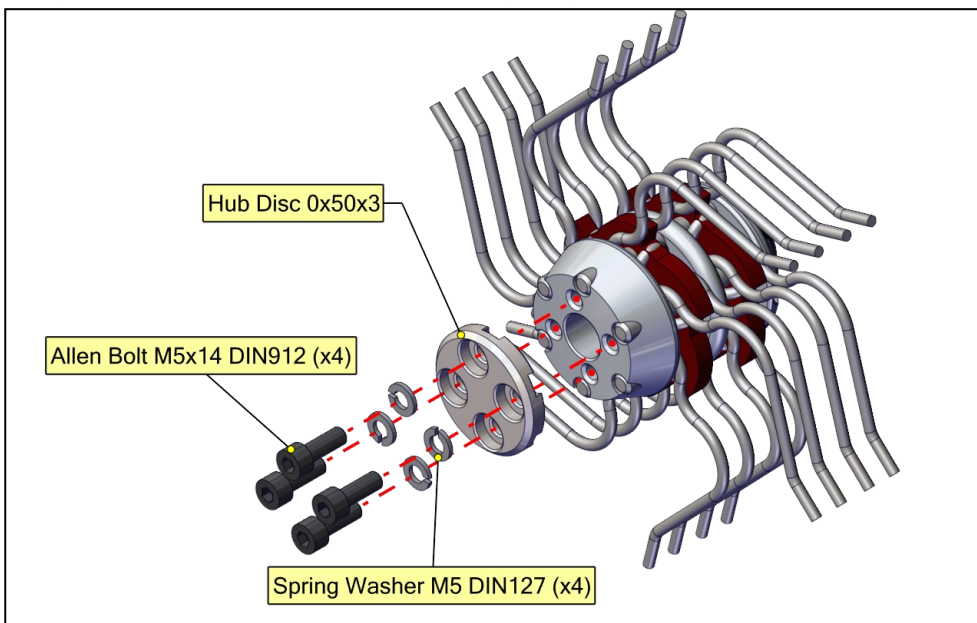
Tool Change - Smart Spider (DN100 & 150 / 4 & 6")



Step 1. Remove the Set Screws.



Step 2. Remove the Allen Bolts, Spring Washers and Hub Disc.

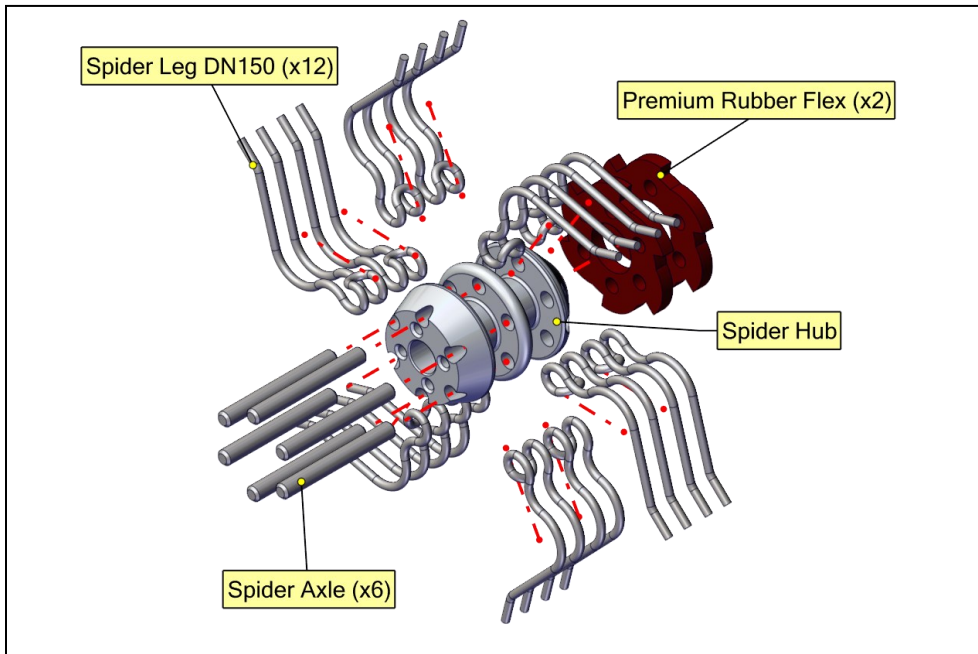


TOOL HEAD REPLACEMENT - SMART SPIDER

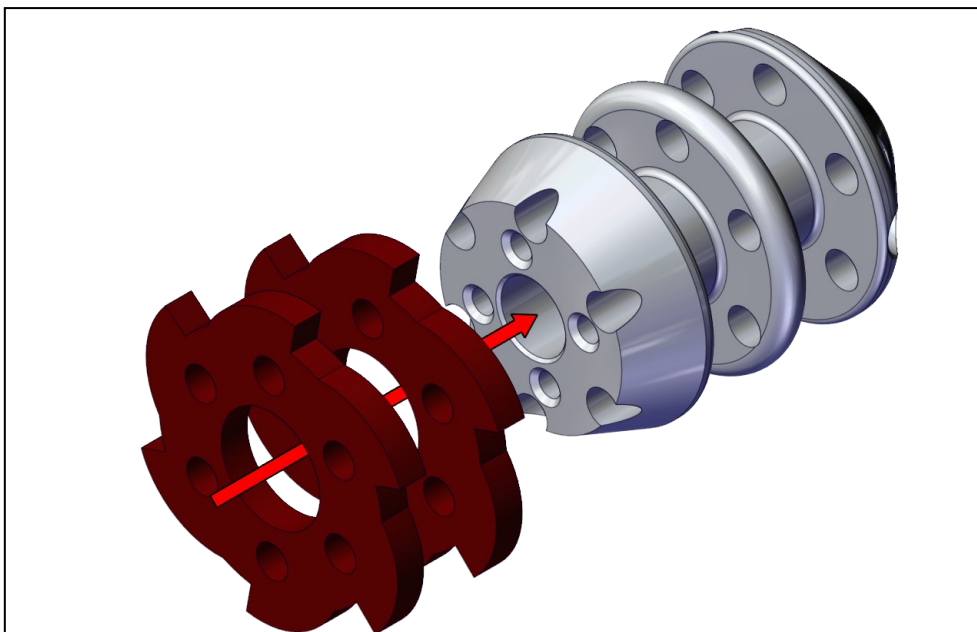
SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

Tool Change - Smart Spider (DN100 & 150 / 4 & 6")

Step 3. Pull out Spider Axles. Remove worn Spider Legs and Premium Rubber Flexes.



Step 4. Push the new Premium Rubber Flexes to the Hub.

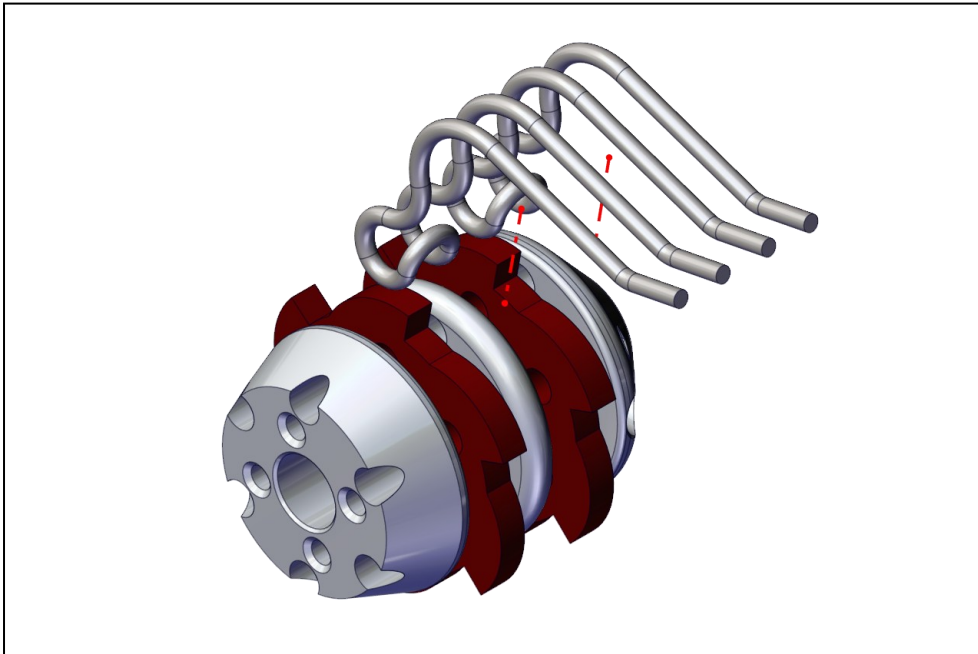


TOOL HEAD REPLACEMENT - SMART SPIDER

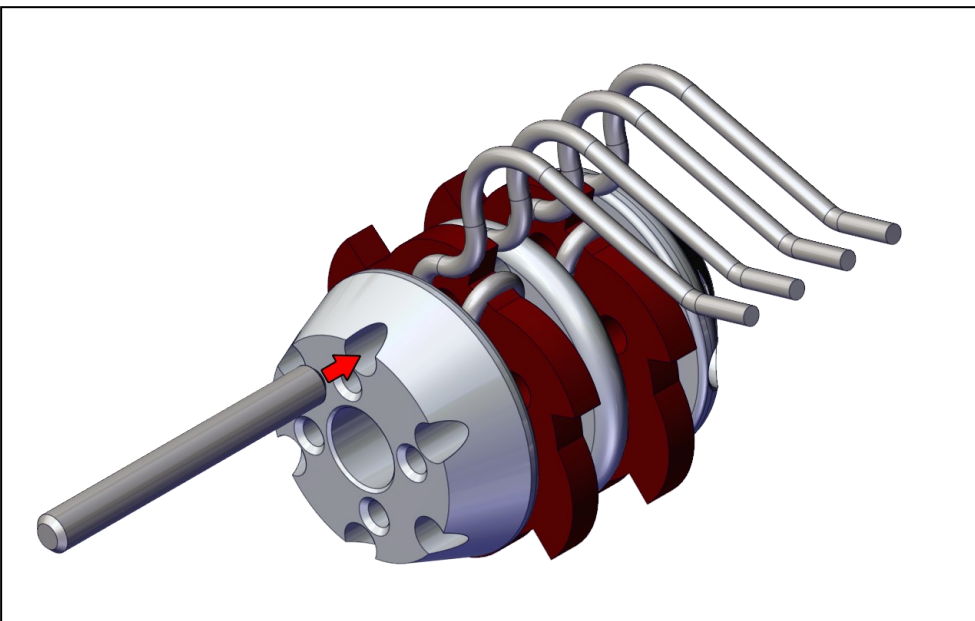
SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

Tool Change - Smart Spider (DN100 & 150 / 4 & 6")

Step 5. Replace the Spider legs in pairs. Make sure that the legs are fitted properly. Look at the correct position on Step 6.



Step 6. Use Spider Axle to lock the Premium Rubber Flex and Spider Leg to the Hub.



TOOL HEAD REPLACEMENT - SMART SPIDER

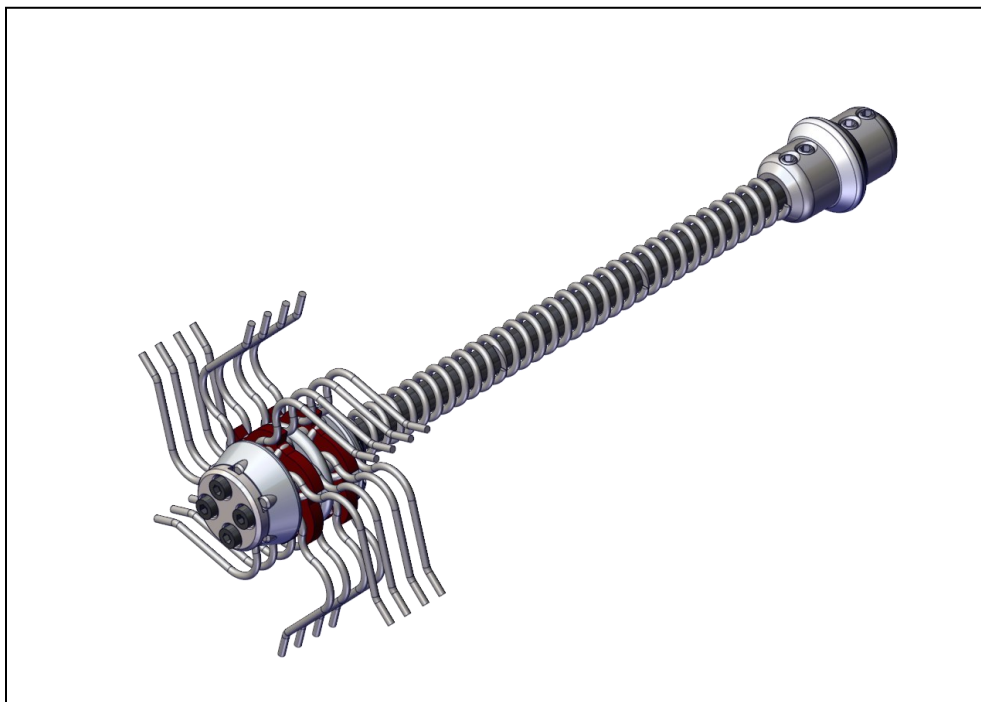
SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

Tool Change - Smart Spider (DN100 & 150 / 4 & 6")

Step 7. Change all the Spider Legs accordingly.

Assemble the tool then by following the previous steps in opposite order.

Recommended to use Loctite 542.



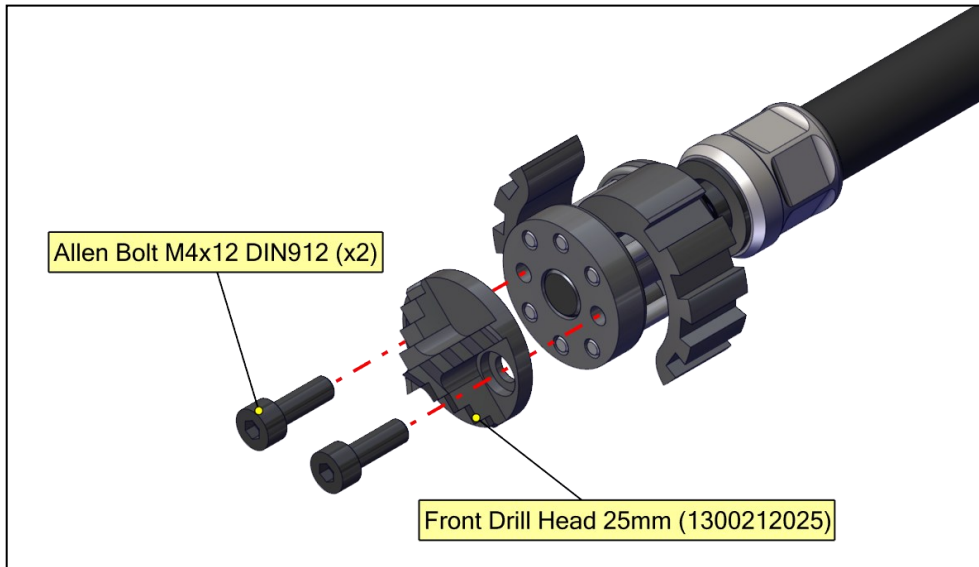
TOOL HEAD REPLACEMENT - MINI SMART SWEEPER

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

Tool Change - Mini Sweeper DN70-75 (3")

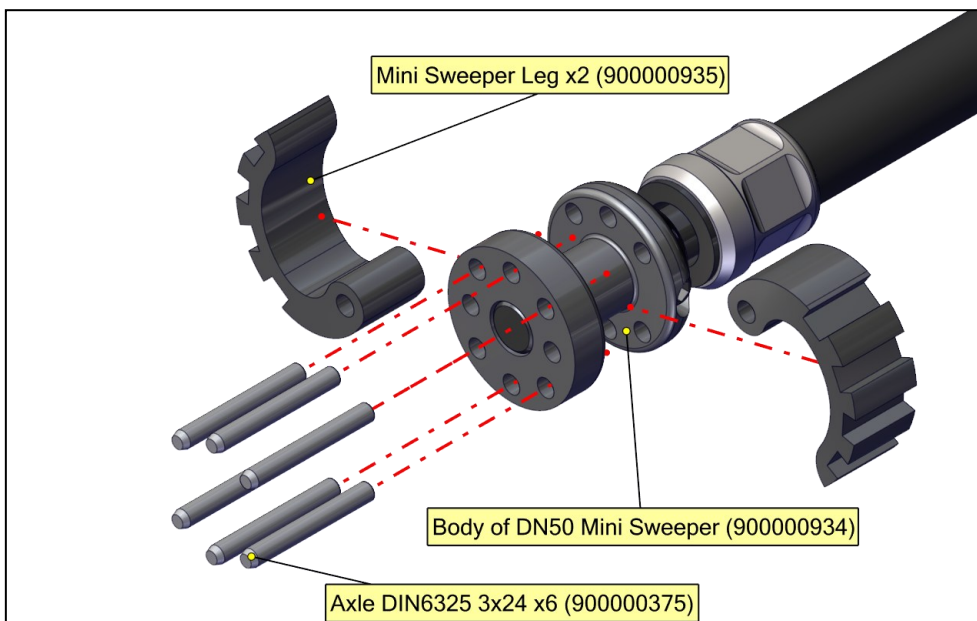


Step 1. Remove Allen Bolts and the Front Drill Head.



Step 2. Remove Axles and replace Sweeper Legs. Repeat in opposite order. Change the Drill Head if needed.

Recommended to use Loctite 542.

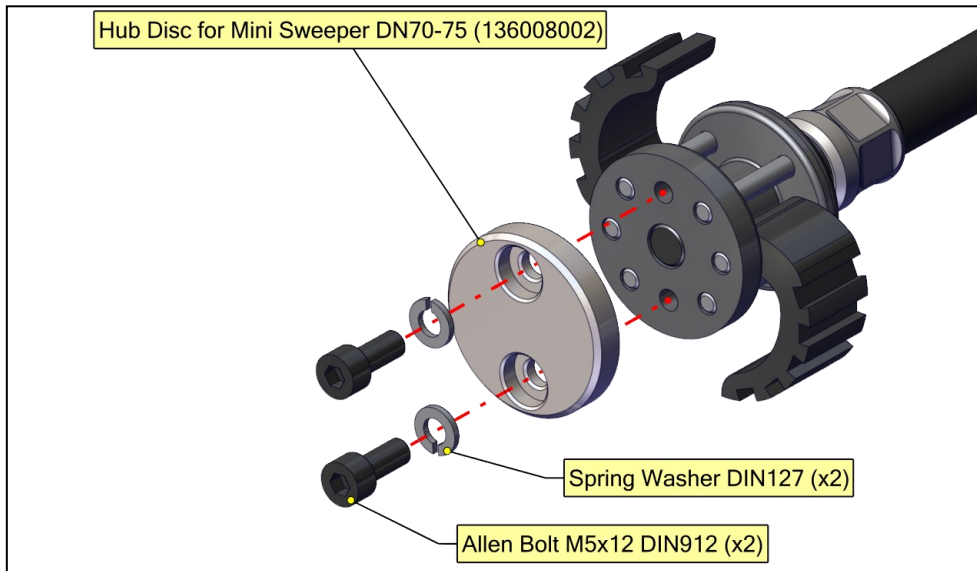


TOOL HEAD REPLACEMENT - MINI SMART SWEEPER

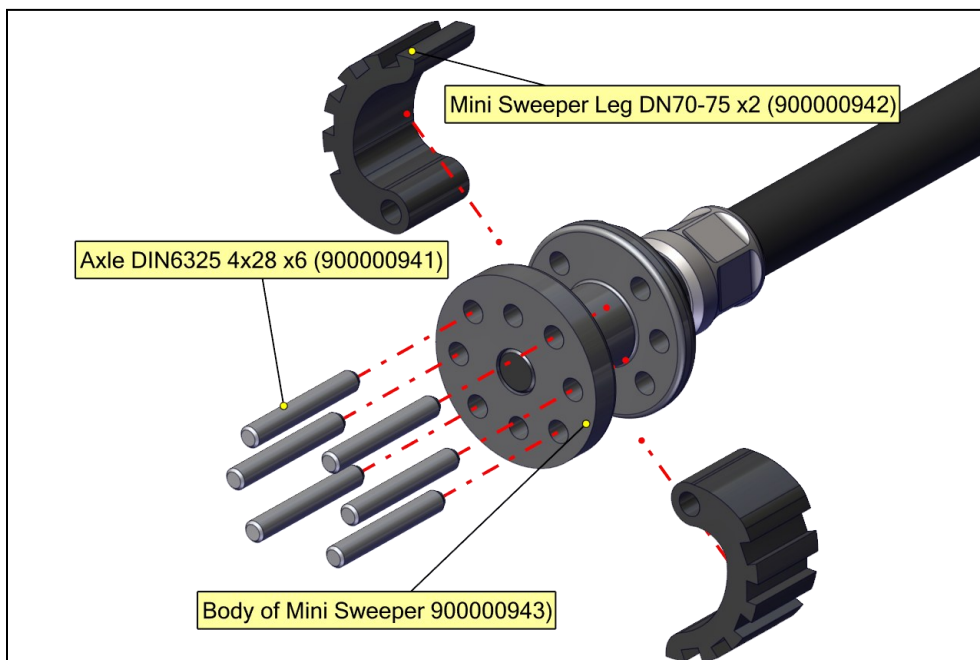
SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

Tool Change - Mini Sweeper DN70-75 (3")

Step 1. Remove Allen Bolts and the Hub Disc (or drill head).



Step 2. Remove Axles and replace Sweeper Legs. Repeat in opposite order.
Recommended to use Loctite 542.

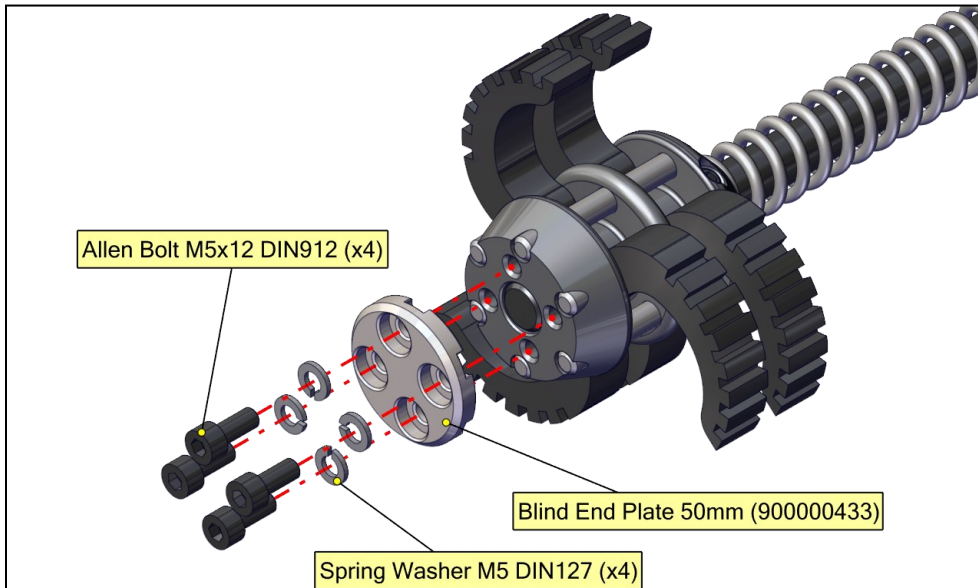


TOOL HEAD REPLACEMENT - MINI SMART SWEEPER

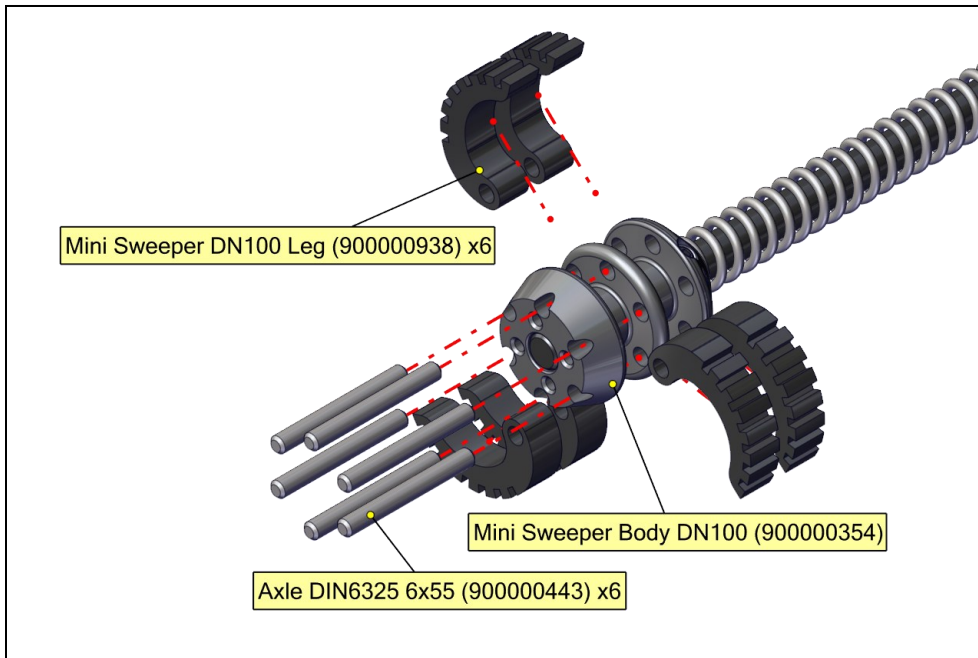
SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

Tool Change - Mini Sweeper DN100 (4")

Step 1. Remove Allen Bolts and the Hub Disc (or drill head).



Step 2. Remove Axles and replace Sweeper Legs. Repeat in opposite order.
Recommended to use Loctite 542.



INSTALLATION & SETUP

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.



BEFORE USE:

Select the correct size tooling and drill head for your job. Ensure water is flowing in the pipe or the vacuum extraction is ready (dry cleaning). Ventilate the working area properly. Ensure that all metallic drain pipes are grounded/earthed. The Smart Spider causes high friction and there is risk of electric shocks. Using a CCTV camera verify the correct position to locate the tool. Place the tool inside the pipe ensuring that legs fit completely inside before turning the Miller on.

DURING USE:

Switch the power on. Initially start at a 500 RPM and slowly increase the speed. Adjust the speed while working but do not exceed 800 RPM, as the tool may get stuck. Hold the shaft tightly. Move the tool in back and forth movement in the pipe. Always use a CCTV camera to check how you are progressing.

Do not force the tool through the pipe - let the tool do the work. If too much force or excessive high speed is used the tool might get stuck resulting in damaging or breaking the tool, shaft or pipe. Use either water or vacuum to remove the debris. Use lower speed when working in fragile or damaged sections of the pipe.

Please note! The legs get very hot during use. Where water cooling is not being used, you need to take breaks to **cool down the tool head after 10-15 minutes of continuous use.** Always wear heat resistant gloves when handling the tools after the machine has been used. The tools can be cooled down using water or left to cool in the open air. Always observe the temperature of the outer casing and let the Miller cool down after **every 30 min** periods of constant work.

INSTALLATION & SETUP

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

ATTACHING THE SMART SPIDER / SMART SWEEPER TO MILLER SHAFT:

- Always inspect the Picote Miller shaft before each use.
- If the shaft is damaged or there are potential weak points, cut off the damaged length or replace the entire shaft as needed.
- Round off any sharp edges to avoid cuts and to make it easier to insert the shaft into the tooling. Please see the corresponding Miller Operation & Safety Manuals for instructions.
- Run the shaft for 30 seconds and then check that there is sufficient length of exposed flexible shaft, without its outer casing, to adequately attach tooling and allow for shaft movement.



Damaged Shaft.
Needs to be trimmed.

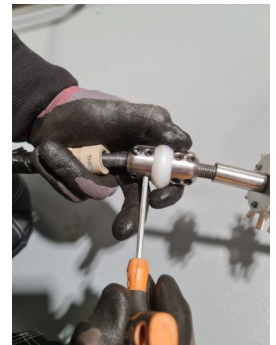


Leave a gap between the sleeve and the Smart Spider / Smart Sweeper of approximately 6mm (1/4").



TIGHTENING THE SET SCREWS / ALLEN BOLTS:

- Check that all bolts have been loosened so that the shaft can be easily inserted.
- Position the shaft inside the tooling as far as it will go.
- Always tighten the screws starting from the screw furthest away from the end of the flexible shaft (where applicable).



AFTER USE:



Be careful when removing the tool from the pipe as the tool head 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!

Inspect the condition of the Body, Tool Head, Grub Screws and shaft. Replace worn-out parts. If part of the shaft is damaged, it can be removed using a portable band saw or disc cutter/angle grinder. Finally, shorten outer casing accordingly.

MAINTENANCE

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

CARING FOR THE FLEXIBLE SHAFT

The Flexible Shaft is pre-treated with **Picote Flexible Shaft Lubricant (1350000020)** and the casing replaced prior to shipping. Always inspect the condition of the Flexible Shaft and apply lubricant between the Flexible Shaft and its outer casing every 2 to 3 months depending on usage. Refer to the relevant machine Operation and Safety Manual for servicing the flexible shaft and its outer casing.



INSPECTION OF THE SMART SPIDER AND SMART SWEEPER TOOLS

Check the condition of the Rubber Flexes for wear and tear on the Smart Spider and replace if damaged or perished. Check the legs for any damage and wear and replace if necessary. The legs on the Smart Spider will wear down and will need to be replaced when they are not long enough to support the tool inside of the pipe.



FASTENER SET SCREWS

If you are unable to tighten the set screws properly, due to worn out hex socket heads, replace the fastener screws immediately.

Always use Loctite 542 on the screw threads to prevent the screws from vibrating loose. Otherwise, the tooling may become loose and fall into the pipe during use.



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 can easily and quickly switch between tools. **Leaders should always be used if possible.**



ADDING A VISUAL MARKER FOR SAFETY

If not using a Leader, attach a visual marker (tape) on the outer casing of the Flexible Shaft. Place it around 500mm (20") from the end of the shaft.

The marker will indicate the tool location and help prevent possible injury from the rotating parts by alerting you when the tool is about to exit the pipe.



WARRANTY POLICY & PROCEDURE

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

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.

EXCEPT AS SPECIFIED IN THIS WARRANTY, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON INFRINGEMENT, SATISFACTORY QUALITY OR ARISING FROM A COURSE OF DEALING, LAW, USAGE, OR TRADE PRACTICE, ARE HEREBY EXCLUDED TO THE EXTENT ALLOWED BY APPLICABLE LAW. TO THE EXTENT AN IMPLIED WARRANTY CANNOT BE EXCLUDED, SUCH WARRANTY IS LIMITED IN DURATION TO THE WARRANTY PERIOD. BECAUSE SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, THE ABOVE LIMITATION MAY NOT APPLY. This disclaimer and exclusion shall apply even if the express warranty set forth above fails of its essential purpose.

TRAINING

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

TRAINING CENTRES:

- Phoenix, Arizona, **USA**
- Porvoo, **Finland**
- Sandhurst, England, **UK**



Picote is highly recommended to get the most out of your investment.

Certificates are awarded for all certification trainings.

Visit our website at www.picotegroup.com or contact us at training@picotesolutions.com to find out about course offerings, pricing, and scheduling.



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