Operator's Manual

Asahi/America, Inc.

ProWeld® Equipment



Powered by



Spider[™] 125 Series 2

Original Language: English

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WARNING Cancer and Reproductive Harm - www.P65warnings.ca.gov

This product and other products could be protected by patents or have patents pending. All the latest patent information is available at patent.mcelroy.com



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EC Declaration of Conformity

Business Name and Full Address of

McElroy Manufacturing, Inc.

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Description of machinery or name(s) of

product(s):

SpiderTM 125 Fusion Machine

Model #(s) 446501, 456501, 467601

Declaration:

The above referenced machinery fulfills all relevant provisions of *Directive 2006/42/EC* of the European Parliament and of the Council of 17 May 2006. McElroy Manufacturing, Inc. states its self-certification process to be effective since 11 Nov 2015.

Place and date of declaration:

Tulsa, OK, U.S.A. 1 Dec 2015

Director of Prod et Development, McElroy Manufacturing, Inc.

CE

The above CE compliance will be invalidated if:

- Any of the equipment is modified in any way without the explicit written consent of McElroy Manufacturing,
- The equipment is used or connected in a manner or configuration that McElroy manufacturing, Inc. does not regard as its intended application

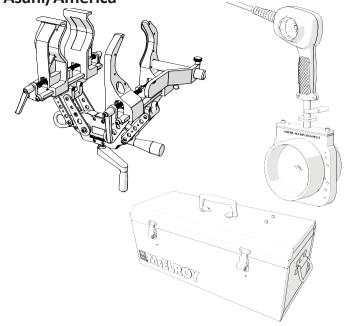
Introduction

Thank You for choosing McElroy through Asahi/America

The Spider™ 125 Series 2 is designed for socket fusion on 63mm to 125mm (2" IPS to 4" DIPS) pipe.

With reasonable care and maintenance, these tools will give years of satisfactory service.

Before operating these tools, please read this manual thoroughly, and keep a copy with the tools for future reference. This manual is to be considered part of your machine.



TX05298-09-28-17

Asahi/America Training Standards

Since 1984, Asahi/America, Inc. has been teaching contractors the benefits of welding thermoplastic piping systems in industrial and high purity applications. Our partnership with McElroy allows us to leverage their state-of-the-art Learning Management System (LMS) using Asahi/America technical standards across all Asahi piping systems.

For more than 30 years, McElroy has been the only pipe fusion machine manufacturer to continuously offer advanced training. Course offerings are meant to enhance your efficiency, productivity and safety in the proper use of McElroy machines. Asahi/America learning portal classes powered by McElroy University are structured so that the skills learned and the machines used in each class closely match the machines found on pipelining jobsites.

Training modules specific to Asahi/America piping systems available for purchase online and required to be completed prior to onsite training by Asahi/America personnel.

This manual is intended as a guide only and does not take the place of proper training by qualified instructors. The information in this manual is not all inclusive and cannot encompass all possible situations that can be encountered during various operations.

Warranties

ASAHI/AMERICA RENTAL WARRANTY

Asahi/America's comprehensive rental equipment policies can be found on our website here: https://www.asahi-america.com/support/rental-equipment-policy

All rental equipment is warranted for six (6) months of on-site usage. All tool failures within this six-month period are handled as indicated in Section V. After six months usage it is recommended that the equipment be returned for regular maintenance and warrantee renewal. Equipment held longer than six months without return is held at the renter's risk.

USED EQUIPMENT WARRANTY

Purchase of refurbished/used equipment carries a 90-day warranty.

NEW EQUIPMENT WARRANTY

Purchase of new Asahi/America versions of McElroy equipment carries a 5-year limited warranty. Details can be found here: https://www.mcelroy.com/warranty.htm

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Safety Alerts

This hazard alert sign appears in this manual. When you see this sign, carefully read what it says. YOUR SAFETY IS AT STAKE.

You will see the hazard alert sign with these words: DANGER, WARNING, and CAUTION.

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

▲WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

▲ CAUTION

Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

In this manual you should look for two other words: **NOTICE** and **IMPORTANT**.

NOTICE: can keep you from doing something that might damage the machine or someone's property. It may also be used to alert against unsafe practices.

IMPORTANT: can help you do a better job or make your job easier in some way.

TX00030-12-1-92



WR00051-11-30-92







Read and Understand

Do not operate this equipment until you have carefully read, and understand all the sections of this manual, and all other equipment manuals that will be used with it.

Your safety and the safety of others depends upon care and judgment in the operation of this equipment.

Follow all applicable federal, state, local, and industry specific regulations.

McElroy Manufacturing, Inc. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the machine are therefore not all inclusive. You must satisfy yourself that a procedure, tool, work method, or operating technique is safe for you and others. You should also ensure that the machine will not be damaged or made unsafe by the method of operation or maintenance you choose.



WR00052-12-1-92

TX02946-4-15-09

General Safety

Safety is important. Report anything unusual that you notice during set up or operation.

LISTEN for thumps, bumps, rattles, squeals, air leaks, or unusual sounds.

SMELL odors like burning insulation, hot metal, burning rubber, hot oil, or natural gas.

FEEL any changes in the way the equipment operates.

SEE problems with wiring and cables, hydraulic connections, or other equipment.

REPORT anything you see, feel, smell, or hear that is different from what you expect, or that you think may be unsafe.



TX00114-4-22-93

Wear Safety Equipment

Wear a hard hat, safety shoes, safety glasses, and other applicable personal protective equipment.

Remove jewelry and rings, and do not wear loose-fitting clothing or long hair that could catch on controls or moving machinery.



TX00032-4-7-93

Heater Is Not Explosion Proof



This heater is not explosion proof. Operation of heater in an explosive atmosphere without necessary safety precautions will result in serious injury or death.

When operating in an explosive atmosphere, the heater should be brought up to temperature in a safe environment, then unplugged before entering the explosive atmosphere for fusion.



WR00034-11-30-92

TX04467-03-24-14

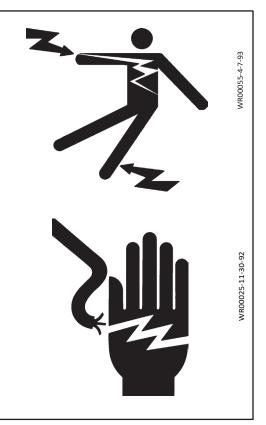
Electrical Safety



Always ensure power cords are properly grounded. It is important to remember that you are working in a wet environment with electrical devices. Proper ground connections help to minimize the chances of an electric shock.

Frequently inspect electrical cords and unit for damage. Have damaged components replaced and service performed by a qualified electrician.

Do not carry electrical devices by the cord.



TX02947-4-15-09

Pipe Handling Safety

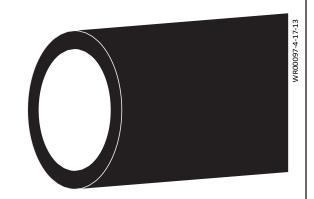


Pipe that is bent can store a great amount of energy. Do not bend and force the pipe into the machine. A bent pipe with stored energy could cause serious injury or death when that energy is released.

It is recommended that the pipe is always be held securely by either being clamped securely in the fusion machine jaws or attached to the lifting device.

Keep persons that are not involved in handling pipe away from handling operations. When the pipe and handling equipment are in motion, all persons involved in handling pipe should be able to see all other persons at all times. If any handling person is not in sight, immediately stop moving equipment and pipe and locate that person. Do not continue until all persons are accounted for and in sight.

Never push, roll, dump or drop pipe lengths, bundles or coils off the truck, off handling equipment or into a trench. Always use appropriate equipment to lift, move and lower the pipe.



TX04698-04-14-14

Overhead Loads

▲WARNING

The Spider™ 125 is not designed to support overhead or overhung loads. Adequately support the pipe using appropriate support devices. If not supported, overhead loads could fall causing serious injury or death.

▲WARNING

Falling equipment can cause severe injury. Hoist the tool using the eye bolt on the tool. Secure the tool using the eye bolt when operating the tool in an elevated location. If not secured properly, equipment could fall causing serious injury or death.



NR00095-9-25-12

TX04455-09-28-17

Heater is Hot

ACAUTION

The heater is hot and will burn clothing and skin. Keep the heater in its insulated heater sling when not in use, and use care when heating the pipe.

NOTICE: Use only a clean dry non-synthetic cloth such as a cotton cloth to clean the heater adapters.



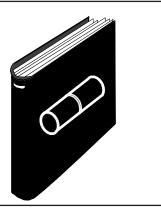
TX05326-09-28-17

Fusion Procedures

Obtain a copy of the pipe manufacturer's procedures or appropriate joining standard for the pipe being fused. Follow the procedure carefully, and adhere to all specified parameters.

NOTICE: Failure to follow pipe manufacturer's procedure could result in a bad joint. Always follow pipe manufacturer's procedures.

TX02984-5-22-12



Overview

Theory of Heat Fusion

The principle of heat fusion is to heat two surfaces to a designated temperature, and then fuse them together by application of force. This pressure causes flow of the melted materials, which causes mixing and thus fusion. When the thermoplastic material is heated, the molecular structure is transformed into an amorphous condition. When fusion pressure is applied, the molecules from each thermoplastic part mix. As the joint cools, the molecules return to their form, the original interfaces are gone, and the fitting and pipe have become one monolithic unit. A strong, fully leak tight connection is the result.

The principal operations include:

Clamping The pipe and fitting must be held firmly to allow all

subsequent operations to take place.

Cleaning The area of pipe that the fitting will come in contact

with must be cleaned.

Aligning The fitting, heater adapters, and pipe must be

properly aligned.

Heating A melt pattern must be formed that penetrates into the

pipe and into the fitting.

Joining The pipe and fitting must be joined and the pipe fully

seated within the fitting.

Holding The molten joint must be held immobile until

adequately cooled.

Inspecting Visually examine the entire circumference of the joint

for compliance with standards established by your company, customer, industry, federal, state, or local

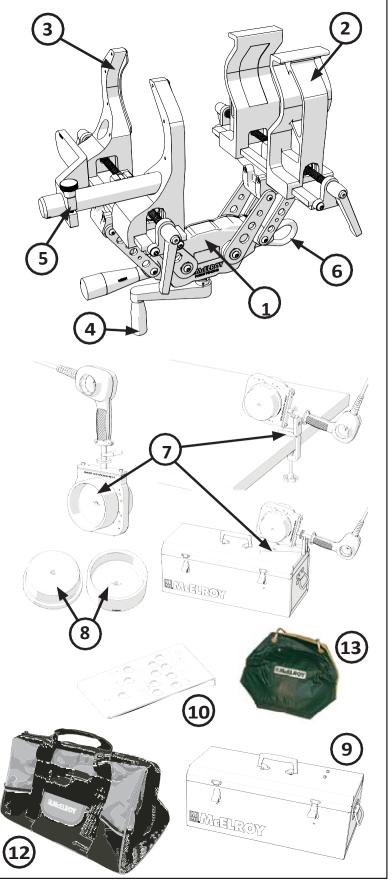
regulations.

TX04696-05-23-17

Overview

Nomenclature

- 1 Spider™ 125 Series 2 Is an assembly tool that has two self-centering jaws and can move the jaws toward or away from each other using the crank handle. It is compatible with 63 125mm (2" IPS 4" DIPS) pipes and fittings
- 2 **Pipe Jaws** Used to hold the pipe in the assembly tool. Jaws are adjusted by rotating the handles on either side of the jaws.
- 3 **Fitting Jaws** Used to hold the fitting in the assembly tool. Jaws are adjusted by rotating the handles on either side of the jaws.
- 4 **Crank Handle** Used to move the jaws toward or away from each other.
- 5 Back Up Bar Used to support the fitting while clamped in the jaws.
- 6 Eye Bolt Used to lift and secure the tool.
- 7 Heater and Heater Stand Used with heater adapters in order to heat the pipe and fitting so that they can be fused. Heater stands can be used on the Socket Storage Box or mounted on a tabletop.
- 8 **Heater Adapters** The correct size adapters should be installed to match the size pipe and fitting used.
- (9) **Socket Storage Box** Toolbox for storage of socket fusion heater adapters and other socket fusion accessories.
- 10 Insertion Depth Gauge Tool used to mark the insertion depth on the pipe for various sizes. Use correct gauge that complies with the standard of the pipe manufacturer.
- (11) Chamfer Tool/Depth Gauge (not included) -Tool used to chamfer the end of the pipe and also measures the insertion depth. These tools are pipe size specific. Use correct gauge that complies with the standard of the pipe manufacturer.
- (2) Spider Storage Bag For the storage of the Spider 125 Series 2 assembly tool.
- (13) **Heater Sling** Used to keep heater insulated when the heater is not being used during fusion.





Read Before Operating

Before operating this machine, please read this manual thoroughly and keep a copy available for future reference.

Return manual to the protective storage box when not in use. This manual is to be considered part of your machine.



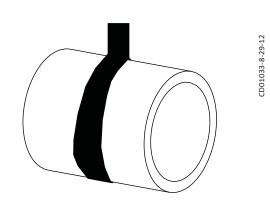
TX00401-9-15-94

Support Pipe

▲WARNING

The Spider™ 125 is not designed to support overhead or overhung loads. Adequately support the pipe using appropriate support devices. If not supported, overhead loads could fall causing serious injury or death.

Ensure the pipe is properly supported before attaching the assembly tool to the pipe. Ensure there is enough travel in the pipe to complete the fusion.



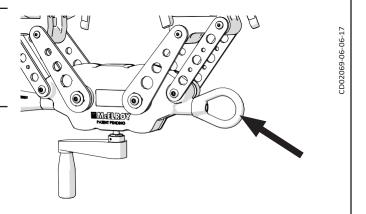
TX04459-03-19-14

Eye Bolt

AWARNING

Falling equipment can cause severe injury. Hoist the tool using the eye bolt on the tool. Secure the tool using the eye bolt when operating the tool in an elevated location. If not secured properly, equipment could fall causing serious injury or death.

The eyebolt can be used to raise the tool to an elevated location and used to secure the tool while be operated in an elevated location.

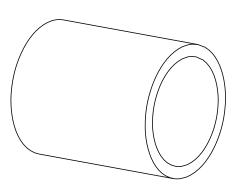


TX05300-09-28-17

Prepare Pipe End

Cut off damaged or oval ends of pipe squarely with a pipe cutter.

Remove shavings and burrs inside pipe end.



TX04408-5-22-12

Heater Adapters

Select the appropriate heater adapters for the size of fitting and pipe being fused together.

The heater body of this assembly is not coated. Coated heater adapters are available for all fusion applications.

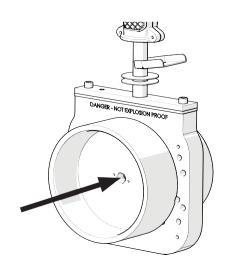
Heater adapters are installed with stainless steel cap screws.

Care should be taken to assure that the heater adapters are seated on the heater body, and that there is no foreign matter trapped between these surfaces.

IMPORTANT: Do not over-tighten the bolts.

The surface of the heater adapters are coated with an antistick coating.

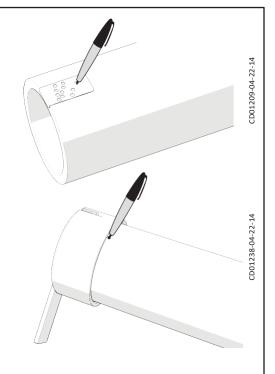
TX04461-9-25-12



Mark Insertion Depth

Use a marking instrument and mark the insertion depth according to the appropriate joining standard. The mark can be made using the insertion depth gauge. This mark is the insertion depth used when fusing the pipe and fitting.

The chamfer/depth gauge tool may be used to chamfer the end of the pipe as well as determine the insertion depth. Mark the insertion depth along the edge of the chamfer/depth gauge. The chamfer/depth gauge is pipe size specific.

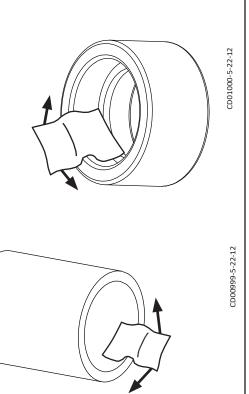


TX04704-04-22-14

Clean Fitting and Pipe

Fitting and pipe must be clean and dry. Use a clean lint free cloth to wipe the mating surfaces.

NOTICE: Do not touch fusion area with hands.



TX04462-04-22-14

Attach Spider 125 to Fitting and Pipe for Polypropylene

Insert the fitting into the fitting jaws ensuring that it is resting against the stop tabs. Tighten the jaws by rotating the jaw clamp handles. The handles can be pulled out and rotated to change the position of the handle for tightening.

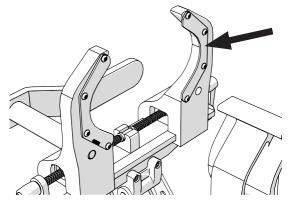
NOTICE: Overtightening the jaws could distort the pipe or fitting resulting in a questionable fusion joint.

Loosen the back up bar and position the bar against the fitting. The back up bar can be removed and turned around to an alternate position in case the bar doesn't fit against the fitting properly.

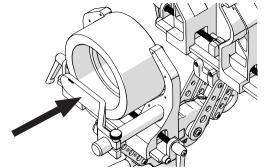
Insert pipe into the pipe jaws, allowing the insertion depth mark to protrude 3/8" to 1/2" past the jaw. Tighten the jaws by rotating the jaw clamp handles. The handles can be pulled out and rotated to change the position of the handle for tightening.

NOTICE: Overtightening the jaws could distort the pipe or fitting resulting in a questionable fusion joint.

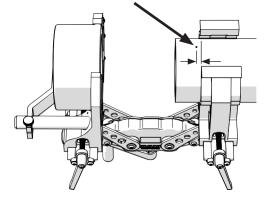
Open the jaws enough to allow the heater to be inserted.

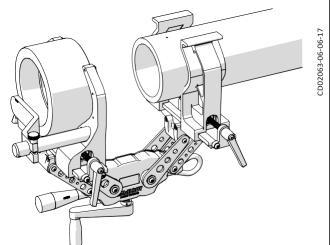


CD02060-06-05-17



Allow insertion depth mark to protrude 3/8" to 1/2" past jaw.





TX05301-09-28-17

Attach Spider 125 to Fitting and Pipe for Polyethylene

Remove the stop tabs from the fitting jaws. Insert the fitting into the fitting jaws ensuring that approximately 1/4" to 3/8" protrudes inside the jaw. Tighten the jaws by rotating the jaw clamp handles. The handles can be pulled out and rotated to change the position of the handle for tightening.

Loosen the back up bar and position the bar against the fitting. The back up bar can be removed and turned around to an alternate position in case the bar doesn't fit against the fitting properly.

The chamfering tool is also a depth gauge for measuring the length of pipe that will go into the fitting.

Place chamfering tool on end of pipe.

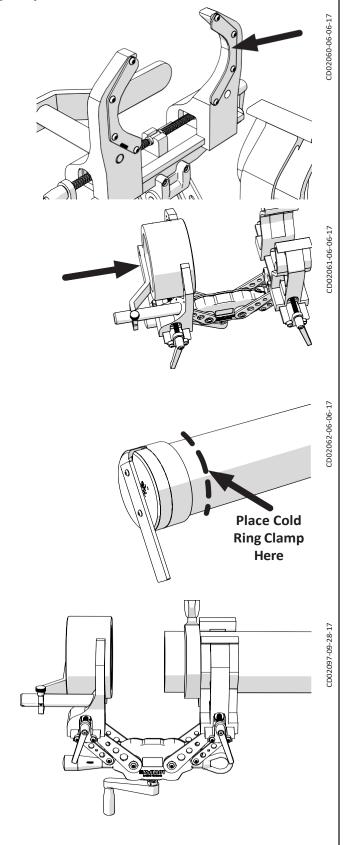
Place cold ring clamp on pipe at the bottom of the chamfering tool.

Remove chamfering tool.

Insert pipe into the pipe jaws, ensure the cold ring clamp rests against the pipe jaws. Tighten the jaws by rotating the jaw clamp handles. The handles can be pulled out and rotated to change the position of the handle for tightening.

NOTICE: Overtightening the jaws could distort the pipe or fitting resulting in a questionable fusion joint.

Open the jaws enough to allow the heater to be inserted.



TX05327-10-13-17

Heater Is Not Explosion Proof

⚠ DANGER

This heater is not explosion proof. Operation of heater in an explosive atmosphere without necessary safety precautions will result in serious injury or death.

If operating in an explosive atmosphere, the heater should be brought up to temperature in a safe environment, then unplugged before entering the explosive atmosphere for fusion.

Use a clean non-synthetic lint free cloth to clean the heater adapter surfaces.

TX04410-04-10-14



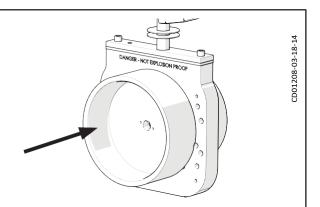
CD01208-03-18-14

Heater Temperature

Set the temperature of the heater per appropriate joining standard.

Use a pyrometer to check the temperature on the socket faces.

If the temperature needs to be adjusted, refer to "Adjusting Heater Temperature" in the Maintenance section of this manual.



TX04700-04-22-14

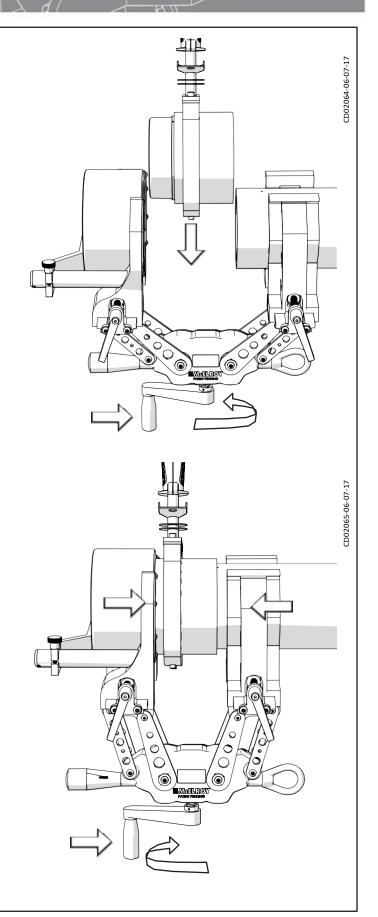
Heating The Pipe and Fitting

Insert the heater in between the pipe end and fitting. Rotate the crank handle moving the pipe and fitting onto the heater. Move the jaws onto the heater to the proper welding depths.

IMPORTANT: Do not force the pipe and fitting onto the heater. Allow the pipe and fitting to melt onto the heater. Forcing the pipe and fitting onto the heater will damage the assembly tool or create a questionable melt pattern.

Heating time starts when the pipe and fitting are fully inserted onto the heater adapters.

Heat fitting and pipe for the pipe manufacturer's specified period of time or appropriate joining standard.



TX04705-04-22-14

Remove Heater

Rotate the crank handle and open the jaws until there is enough room to remove the heater. Quickly remove the heater from the pipe and fitting.

IMPORTANT: An optional auxiliary heater handle is available to assist with removing the large socket heater.

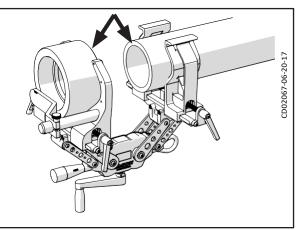
CD02066-06-07-17

TX04417-09-28-17

Inspect Melt

Quickly inspect the heated parts to make sure all surfaces have been melted properly.

If melt is not complete, cut off melted pipe end. Use a new fitting and repeat preparation and heating process.



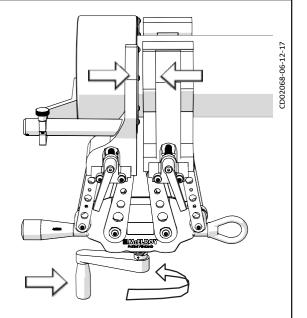
TX01408-6-20-97

Fusion and Cooling

Rotate the crank handle and close the jaws completely together.

NOTICE: Be sure to complete the joint in the time allowed by the pipe manufacturer or appropriate joining standard.

Allow the jaws to stay in place for the total cooling time specified by the pipe manufacturer or appropriate joining standard.



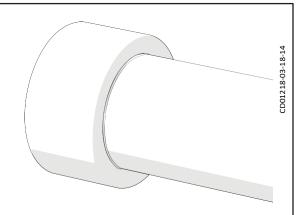
TX04706-04-22-14

Inspecting Fusion Joint

After completing the specified cooling time, inspect the joint for compliance with the appropriate joining standard.

There should be no gaps or voids between the fitting and the pipe.

If the joint is not acceptable, cut off the joint and re-fuse the joint.



TX04703-04-22-14

Maintenance

Preventative Maintenance

To insure optimum performance, the machine must be kept clean and well maintained.

With reasonable care, this machine will give years of service. Therefore, it is important that a regular schedule of preventive maintenance be kept.

Store machine inside, out of the weather, whenever possible.



TX00428-8-10-95

Cleaning the Machine

Clean the machine with a soap and water wash as needed.

Do not pressure wash.

Disconnect heater before cleaning.

NOTICE: Do not allow water on electrical components of the heater. Allow to dry completely before use.



TX04707-04-22-14

Lubrication

The assembly tool is sealed and does not require any lubrication.

TX04708-04-22-14

Maintenance

Installing Socket Fusion Heater Adapters

The heater body of this assembly is not coated. Coated heater adapters are available for all fusion applications.

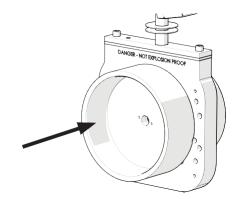
Heater adapters are installed with stainless steel cap screws.

Care should be taken to assure that the heater adapters are seated on the heater body, and that there is no foreign matter trapped between these surfaces.

IMPORTANT: Do not over-tighten the bolts.

The surface of the heater adapters are coated with an anti-stick coating.

NOTICE: Only install heater adapters when the heater is cool.



CD01208-03-18-14

TX01413-6-17-10

Adjusting Heater Temperature

Turn knob to desired temperature. Measure the heater surface temperature with a pyrometer. Any variance must be corrected to the pyrometer reading.

Loosen setscrew in the knob. Turn knob to point to the same temperature as the pyrometer. Tighten setscrew in the knob.

Turn knob to desired temperature. Allow heater to stabilize at the new temperature (5 to 10 minutes) after adjusting.

The thermometer on the heater body indicates internal temperature and should be used as a reference only.

TX02009-3-13-02



Maintenance

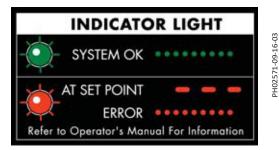
Heater Indicator Light

The heater has a green indicator light which will flash on and off. This indicates that the controller is operating normally. If the green indicator is not flashing then the controller may not be operating properly. If this occurs, disconnect power and have the heater repaired by a McElroy Authorized Service Center.

The heater has a red indicator light on the handle at the bottom of the temperature scale. When the heater is plugged in and preheating the red light glows steadily until the set temperature is reached. The red light then goes off and on as the heater maintains temperature.

If the heater is not operating properly, the control will attempt to turn the heater off and the red indicator light will flash rapidly. If this occurs, disconnect the power and take it to a McElroy Authorized Service Center for repair.





TX04036-4-12-10

Specifications

Specifications

The Spider™ 125 Series 2 is designed for socket fusion of 63mm to 125mm (2" IPS to 4" DIPS) pipe.

Heaters:

Large Socket Heater Power - 100V - 120V, 50/60Hz, 1600 Watt, 1Ph

Weight:

Larger Socket Heater: 5.5 lbs. (2.5 Kg)

Toolbox Dimensions:

Length: 24" (609.6mm) Width: 10" (254mm) Height: 9.5" (241.3mm)

Spider™ 125 Series 2

Weight: 16 lbs. (7.3 Kg)

Dimensions:

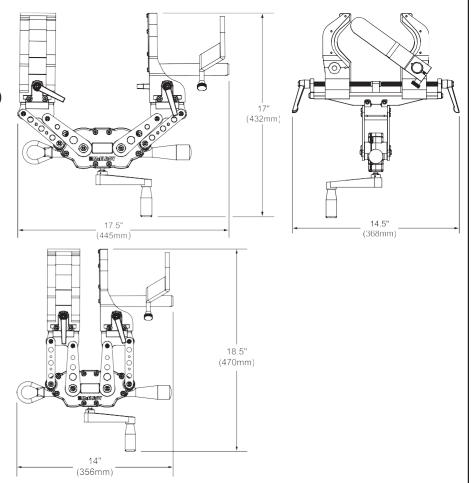
Length: 17.5" (445mm)

Width: 14.5" (368mm)

Height: 18.5" (470mm)

Maximum Stroke: 7.6" (193mm)

Gear Ratio: 20 to 1



TX05328-09-28-17

Equipment Rental

Rental Equipment Manager 781-388-4618 toolmanager@asahi-america.com

Rental Administration, Billing & Returns 781-388-4623 toolrental@asahi-america.com

Field Technician/Onsite Training

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