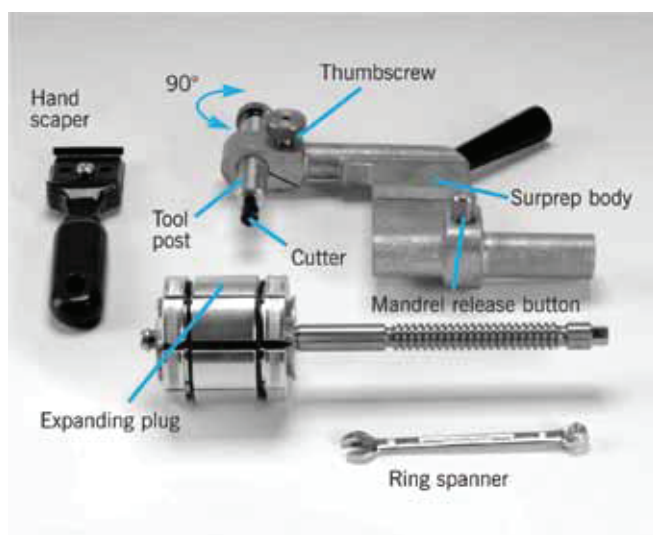


Instruction manual for Protecta-Line pipes + Technical insulation



Academy

Procedure for Using the Protecta-Line Surprep Scraper (90mm-180mm)



| Code | 90mm | 110mm | 125mm | 160mm | 180mm |
|-----------|------|-------|-------|-------|-------|
| 01-07-081 | • | • | | | |
| 01-07-083 | | | • | • | • |

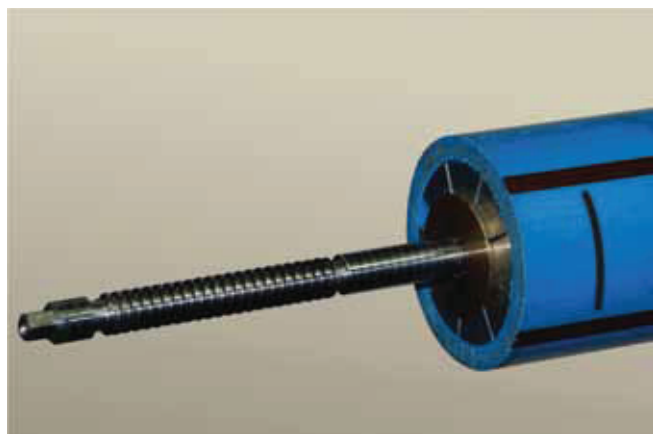
To order, please contact
Caldervale directly on
01924 469571 or
sales@caldertech.co.uk

The Surprep Kit is
available for hire through
MCA Hire Services
www.mcahire.com and
Plant & Site Services Ltd
www.psshire.com

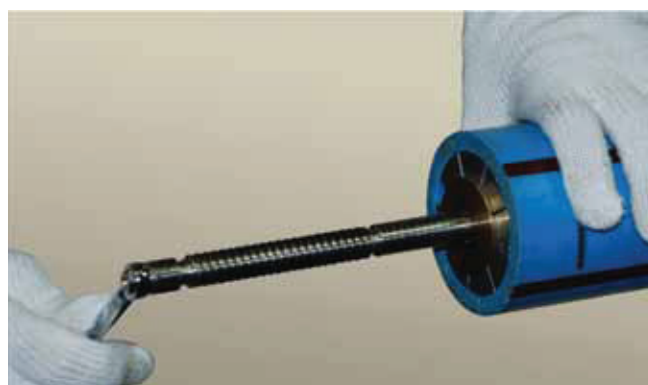


The Protecta-Line Surprep Kit has been designed to allow the correct scraping of Protecta-Line barrier pipe prior to electrofusion jointing.

1. Measure the insertion depth of the electrofusion fitting to be used (see table on page 26). Place a mark on both pipes to show the position where the edge of the fitting will be.
2. Clamp the pipe to be prepared taking care to avoid damage to the pipe's outer covering.
3. Separate the mandrel from the body of the Protecta-Line Surprep Scraper.



4. Hold the expanding plug and rotate the mandrel anticlockwise until the plug is a light interference fit in the pipe bore.
5. Push into pipe until edge of plug is level with edge of pipe. Expand plug further using the 10mm ring spanner. Do not over-tighten in order to avoid pipe distortion.

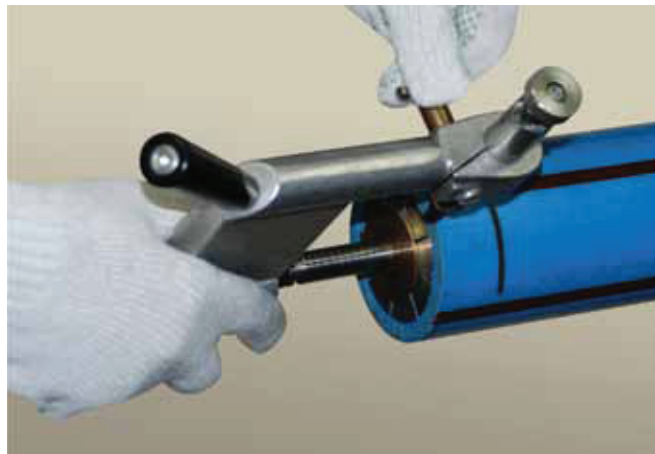


6. Slide the body of the Protecta-Line Surprep Scraper onto the mandrel, depress the release button and position the cutter close to the edge of the pipe.

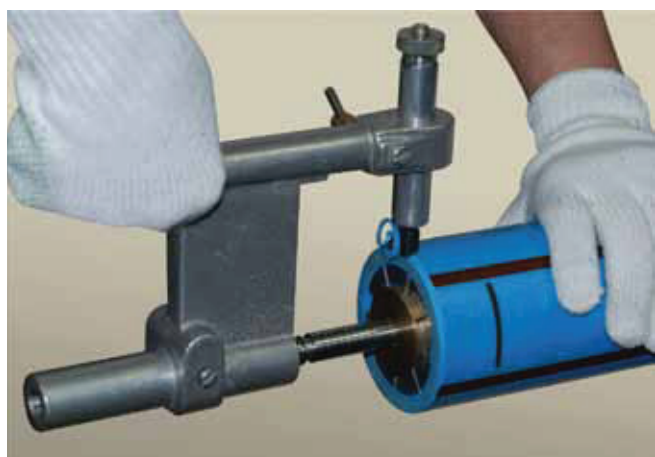


Note: Protecta-Line Surprep Scraper cuts in an anti-clockwise direction, beginning at the end of the pipe.

7. Rotate the knob on the top of the tool post through 90°, against the spring tension, such that the cutter is in its raised position.



8. Loosen the body thumbscrew and position the cutter shoe on the edge of the pipe. Tighten the thumbscrew.
9. Rotate the knob on top of the post through 90° so that spring pressure is applied to the cutter.



10. Rotate the tool anti-clockwise in a smooth continuous motion to remove the outer layers in a continuous strip.
11. Stop cutting when the socket depth mark is reached.



12. Rotate the knob on top of the tool post so that the spring pressure is released.
13. Use the hand scraper to remove the peeled strip from the pipe.

Do not attempt to break the peeled strip by pulling with bare hands, it has a sharp edge!

Remove the tool in the reverse order of assembly (steps 3-6).



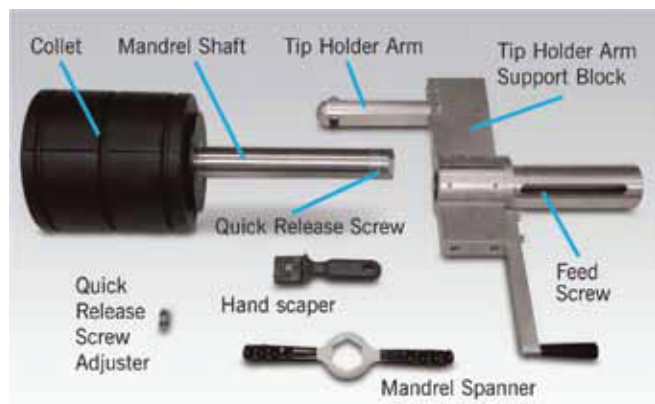
14. Inspect the prepared surface to ensure:
 - i) All of the metallic layer has been removed.
 - ii) All of the adhesive which bonds the metallic layer to the blue core has been removed.
15. If, for any reason, the prepared surface is not a uniform blue colour all over, use the hand scraper to complete the preparation process.

Never attempt a second pass with the Protecta-Line Surprep Scraper.

When made in accordance with GPS PE Pipe Systems' recommended procedures, butt-fusion and electrofusion joints of the Protecta-Line system have been independently shown to meet the requirements of WIS 4-32-19 without any need for subsequent wrapping. This does not exempt installers from local regulations and the local Water Company preferences must be adhered to.



Procedure for Using the Large Diameter Protecta-Line Scraper (above 180mm)



For Protecta-Line sizes above 180mm, the Surprep Scraper is a dedicated tool for each pipe size, with the cutter set to produce the required outside diameter. Adjustments must be done by a competent person and should not be carried out on site.

| | 225mm | 250mm | 280mm | 315mm | 355mm |
|---------------------------------|-------|-------|-------|-------|-------|
| Pipe insert collet | | | | | |
| 01-07-255 | ● | | | | |
| 01-07-256 | | ● | | | |
| 01-07-257 | | | ● | | |
| 01-07-258 | | | | ● | |
| 01-07-259 | | | | | ● |
| Rotary tool c/w mandrill shaft* | | | | | |
| 01-07-251 | ● | ● | ● | ● | ● |

* Includes 2 collet expanding cones

To order, contact Caldervale directly on 01924 469571 or sales@caldertech.co.uk. The Large Diameter Scraper is available for hire through MCA Hire Services (www.mcahire.com) and Plant & Site Services Ltd (www.psshire.com).



1. First mark the required length of pipe to be scraped (see table on page 26).

Ensure that the correct size collet for the pipe to be scraped is fitted to the mandrel.

Adjust the collet by twisting the mandrel shaft anti-clockwise until it achieves its smallest outside diameter.

Slide the collet into the bore of the pipe, allowing 20mm of pipe to show after the collet, to allow for the barrelling effect found at the end of the pipe.



2. Adjust the collet by twisting the mandrel shaft clockwise until the mandrel becomes secure in the bore of the pipe and tighten with the mandrel spanner.

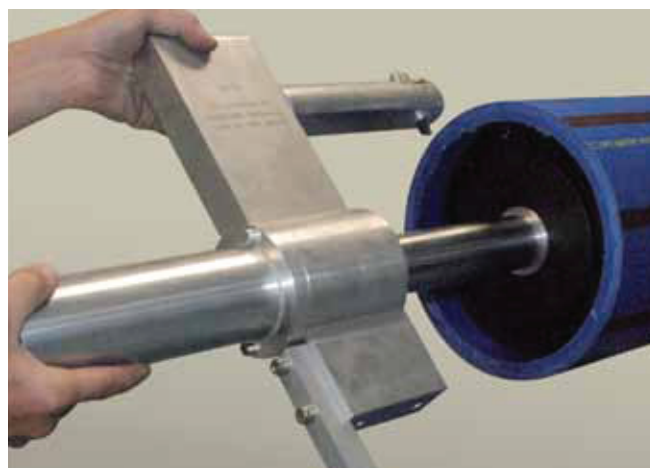
To achieve the correct alignment parallel to the pipe bore, a joggling action in all directions is required.

The collet also acts to re-round the pipe so check for gaps between the collet and the bore of the pipe.



3. Once the mandrel is secure and is parallel with the pipe bore, screw down the quick release screw to its full extent (about one and a half turns) using the adjuster, which is stored at the base of the tip arm support block.

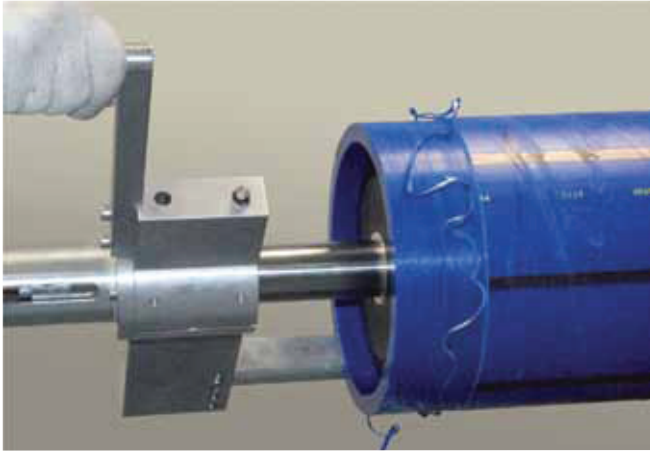
Note: Remember the position of the quick release screw.



4. Ensure that the tip holder arm has been located in the hole corresponding to the pipe size in the tip holder support block.

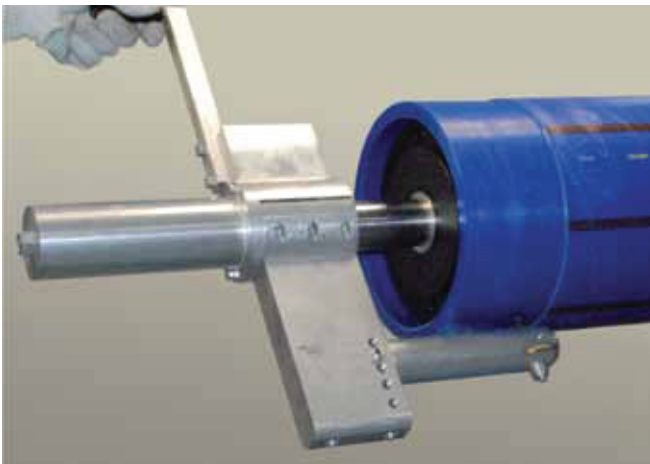
Locate the tool onto the mandrel shaft taking care not to damage the bore of the tool.

Slowly slide the tool along the mandrel shaft using a twisting action, until the feed screw touches the quick release feed screw nut.



5. Taking care to avoid damaging the quick release nut and feed screw, rotate the tool in a clockwise direction with a slight force pushing forward.

Once the feed screw has engaged with the quick release nut, it will now proceed to travel along the length of the mandrel shaft, removing the outer barrier layers and preparing the pipe for electrofusion jointing.



6. When the required length of pipe has been prepared, raise the quick release screw to its top position (about one and a half turns).

The quick release screw can be accessed through the slot in the feed screw housing tube.



7. The tool can now be removed from the mandrel shaft.
The tool should be removed to a clean dry and safe area.



8. Loosen the collet using the mandrel spanner on the mandrel shaft in an anti-clockwise direction until free.



9. Remove the collet and mandrel from the pipe.

The collet should be removed to a clean dry and safe area. If there are any areas of pipe that have not been prepared properly, then the hand scraper should be used to complete the preparation process.

The barrelling effect found at the end of the pipe may result in the barrier layers remaining on the pipe surface for a short distance in from the end of the pipe.

When made in accordance with GPS PE Pipe Systems' recommended procedures, butt-fusion and electrofusion joints of the Protecta-Line system have been independently shown to meet the requirements of WIS 4-32-19 without any need for subsequent wrapping. This does not exempt installers from local regulations and the local Water Company preferences must be adhered to.



Instruction in using shrink sleeves for pipes

Place the shrink sleeve on the pipes before the pipes are welded together.

When the welding is done using E-Couplers or butt-welding, please wrap the welded area with Protecta-Line aluminium foil.

Place the shrink sleeve over the welded area and carefully use the gas burner to shrink the sleeve.

For pipe sizes up to d63 mm. - We recommend to use aluminium foil butyl tape and not shrinking sleeve.

When the welding is done using E-couplers or butt-welding, please wrap the welded area with Protecta-Line aluminium foil butyl tape.



Academy

Installing straight joints

BXJoints

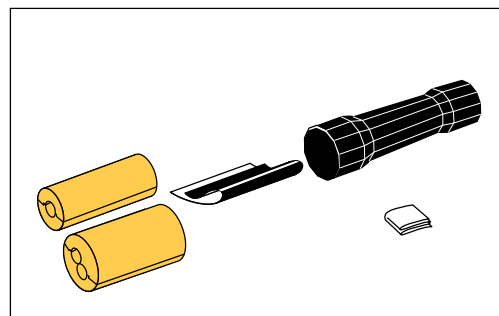
Application

The BXJoint is a closed shrink joint, installed prior to welding the service pipe together. It is used to join pipes with outer casing dimensions \varnothing 90-630 mm.

BXJoints can also be foamed in alu-wrap, see Installation of BXSJoint.

General guidelines for pipes and casing joint installation, see section 5.1 "Preparations for joint installation".

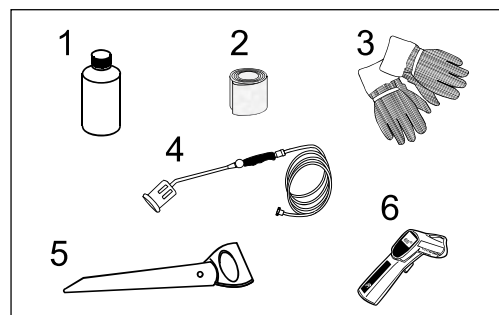
Connecting alarm wires, see sections 23.3 and 23.4.



Tools

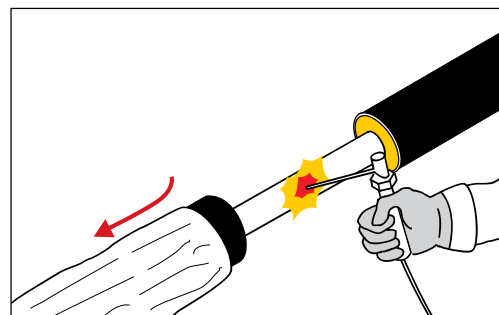
Use the following tools when installing BXJoints:

1. Alcohol, min. 93%
2. Emery cloth, grain size 36-60
3. Gloves
4. Gas burner:
 \varnothing 50 mm: Minor dimensions
 \varnothing 60 mm: Major dimensions
5. Saw
6. Temperature measuring device



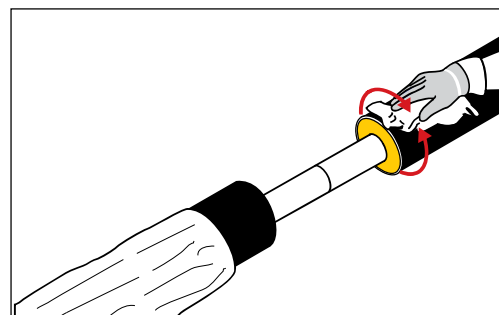
Preinstallation of casing joint

1. Place the shrink sleeve with packing on one of the pipes, before the service pipes are joined.



Cleaning

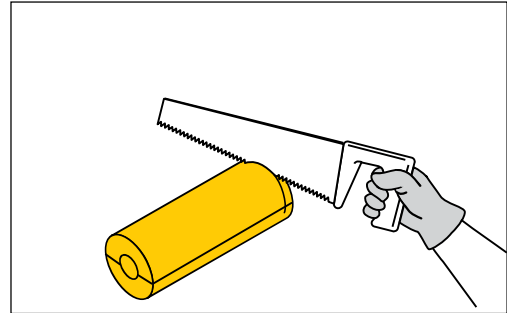
2. All surfaces in the mounting area must be CLEAN and DRY



Installing straight joints BXJoints

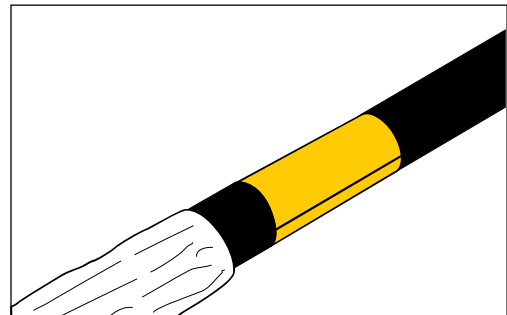
Adjusting insulation shells

3. Shorten the insulation shells to make them fit tightly between the casing pipes.



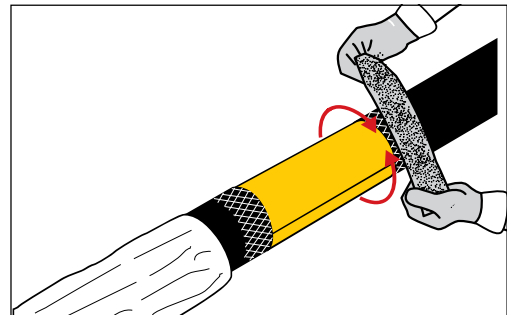
4. Fit the insulation shells tightly between the casing pipes, using adhesive tape, if required. All surfaces must be CLEAN and DRY.

Afterwards clean the casing surface with alcohol.

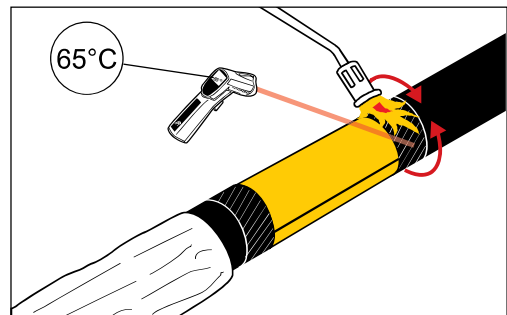


Activation

5. Grind the contact surfaces of the shrink film and shrink sleeve with emery cloth.
Remove grind dust, if any.
Avoid touching the ground contact surfaces



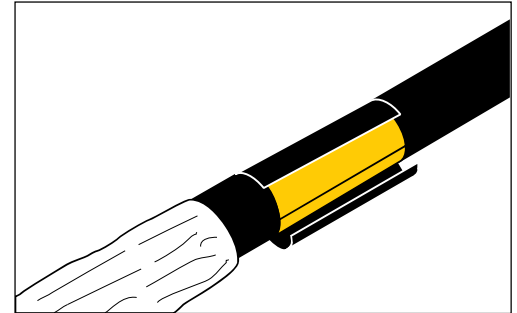
6. Activate the contact surfaces with gas burner to a surface temperature of min. 65°C.



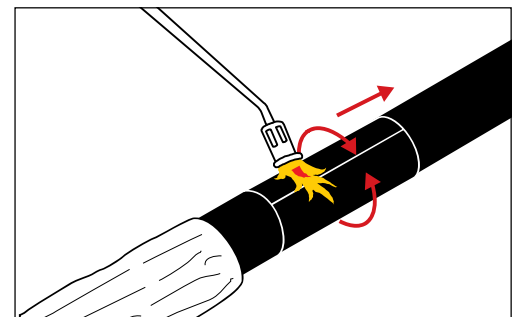
Installing straight joints BXJoints

Installing shrink film

7. Centre the shrink film on the joint and place it around the pipe. Attach one edge of the shrink film in "10 o'clock" position.
8. Pull the film around the pipe by removing the adhesive paper so that the film adheres to the surface beneath it.

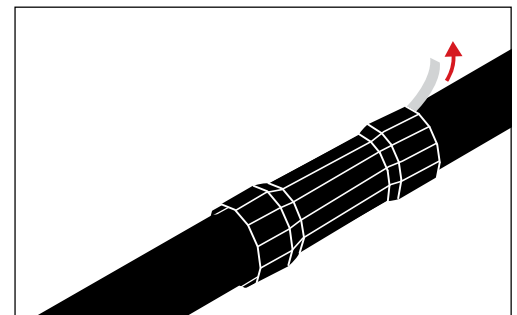


9. Heat the whole film from the centre towards the sides, ensuring that the shrink film is tightly fitted.



Positioning shrink sleeve

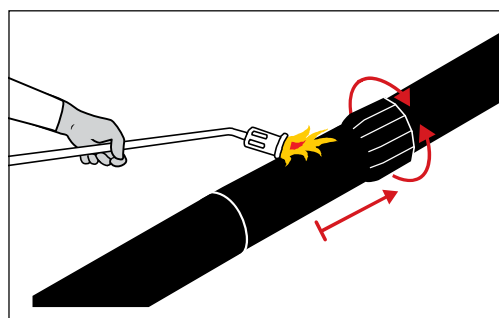
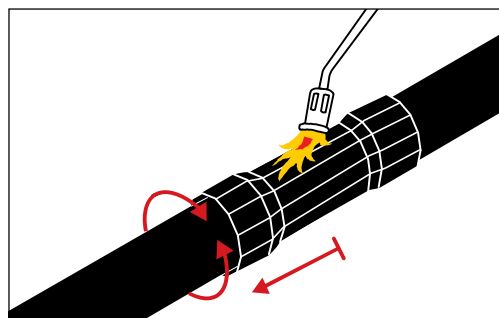
10. Remove the packing from the shrink sleeve. Check that the sleeve is CLEAN and DRY, inside and out.
11. Centre the shrink sleeve on the joint. Remove the mastic cover in the shrink sleeve and make sure that all the foil has been removed.



Installing straight joints BXJoints

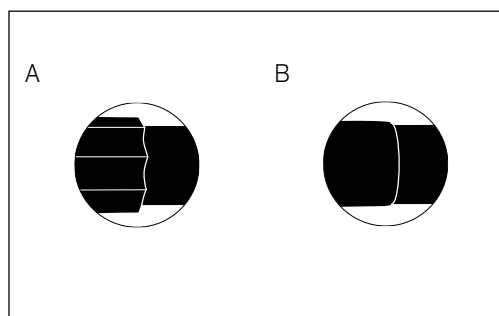
Shrinkage

12. Shrink the sleeve from the middle towards one end, then from the middle towards the other end. Avoid heating directly on the casing.



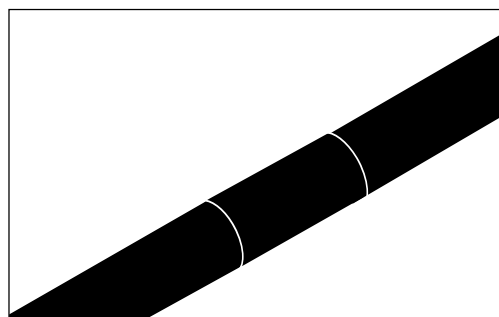
13. Shrink until all expansion marks have vanished and the end of the sleeve forms an almost straight encircling edge.

- A. Before
B. After



Completed joint

14. The joint is complete.
Visual inspection and documentation, if any, see the section "General"

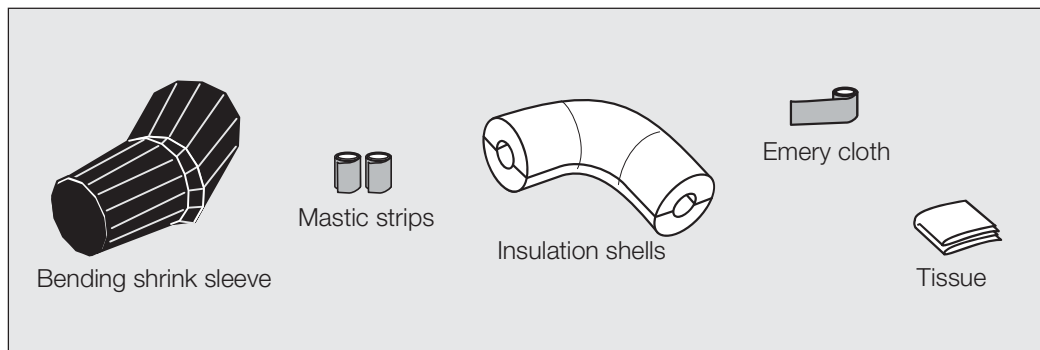


BM

Elbow joint, single sealed

Fitting Instructions

1/2



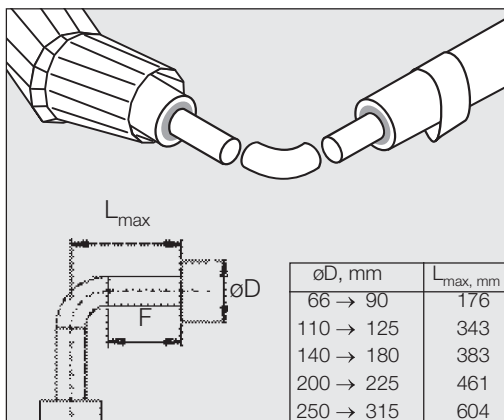
Important:

It is only necessary to pull the sleeve if shrinking across the centre has been carried out too quickly. Fig. 10.

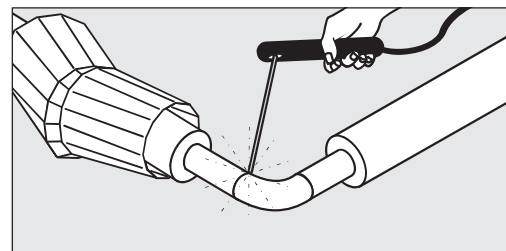
Never apply heat to creases, if any, since the sleeve material will be discoloured and the surface will crack.

Never apply heat underneath the sleeve at the ends, since this may damage the sleeve permanently.

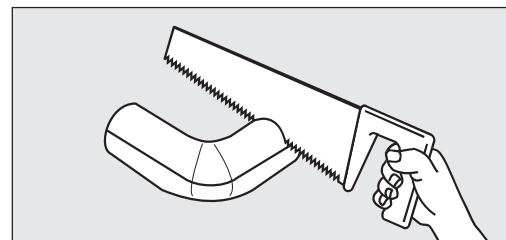
Pockets of air under the sleeve can be removed by bending a piece of welding wire into U-shape and pushing it underneath the sleeve while it is still warm. Use burner head dia. 51 mm for sleeves up to dia. 200 mm. For larger sleeves use burner head dia. 63 mm.



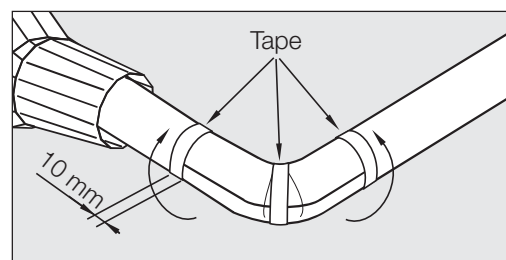
1. Place the two pipe ends at the correct angle. Pull the shrink sleeve onto the pipe (F = max. 150 mm).



2. Weld the steel pipes. Pressure test.



3. Cut the insulation shells to make them fit over the steel pipes.



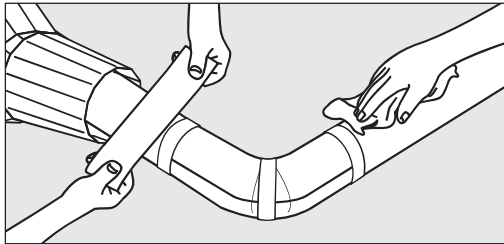
4. Fasten the insulation shells with tape. The tape overlap on the jacket is max. 10 mm.

BM

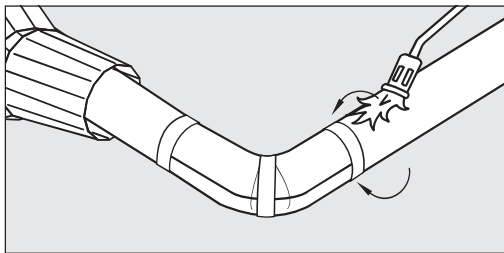
Elbow joint, single sealed

Fitting Instructions

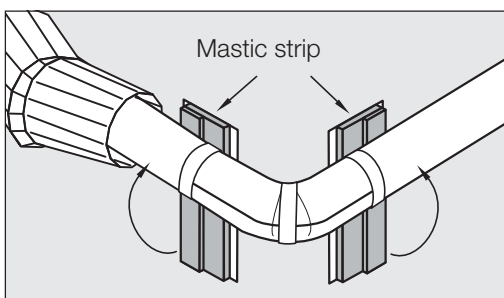
2/2



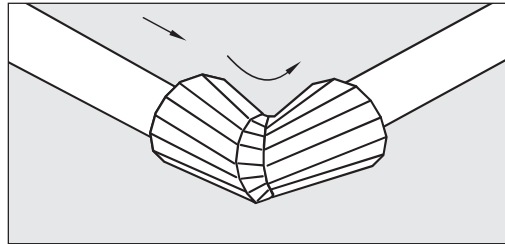
5. Clean the jacket with tissue. Activate the jacket pipes with ABRASIVE CLOTH at least 80 mm from both jacket ends. Use ABRASIVE CLOTH to remove sharp edges or burrs on the jacket pipes.



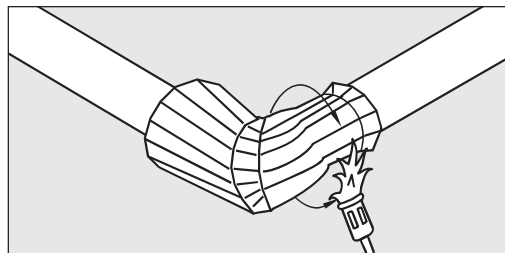
6. Activate the jacket pipes at least 150 mm from both jacket ends until the surface has a matt, silky look.



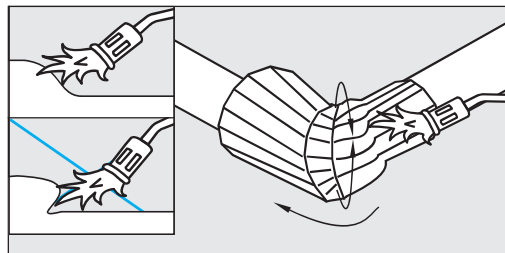
7. Pull the paper off the adhesive side of the mastic strip. Place the adhesive side face down on the jacket pipe furthest from the insulation shells.



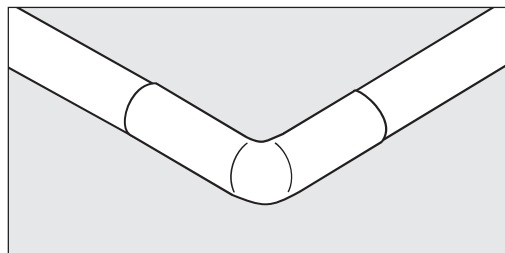
8. Remove the packing from the shrink sleeve. Check that it is CLEAN and DRY, inside and out. Centre the shrink sleeve on the elbow.



9. Start shrinking at the top of the shrink sleeve 5-8 cm from the end. During shrinking it is possible to adjust the position of the shrink sleeve.



10. Shrink from one end towards the other. Continue moving the flame until all expansion marks have vanished.



11. The joint is now complete.