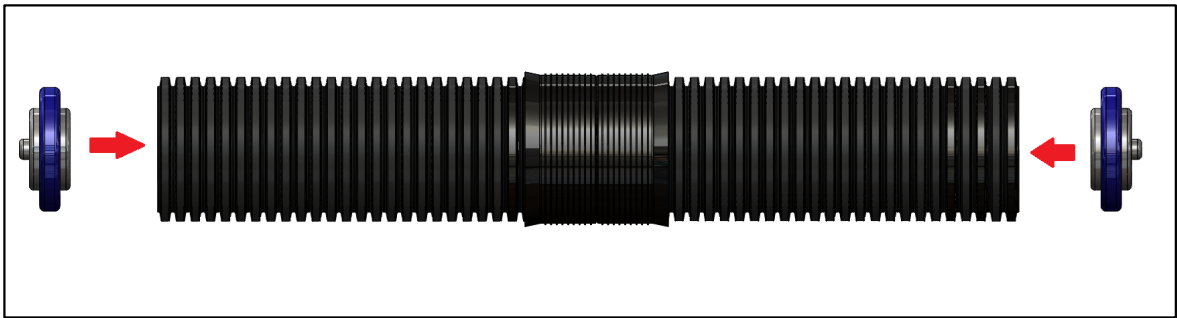


Title:	JOINTING AND AIR TEST GUIDE
Product Range:	MetroDrain and N-Drain
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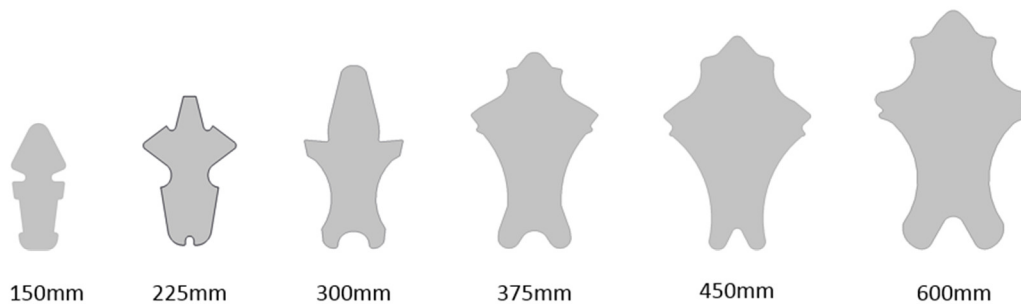
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1. JOINTING

Before jointing, the Pipe and Seal should be cleared of all sharp edges and dirt.

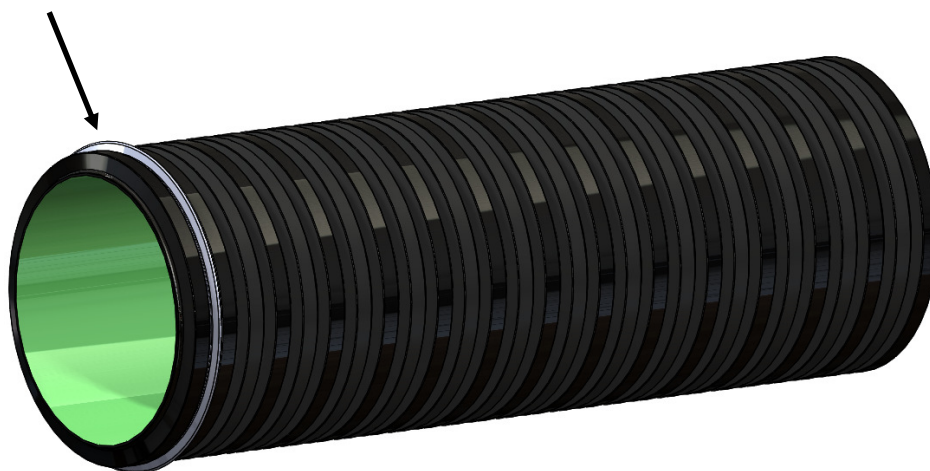
Positioning the Seal:

Naylor lubricant should be applied to the Pipe end before assembling the correct sized seal. Different profiles exist for each size of Naylor pipe, as shown below.



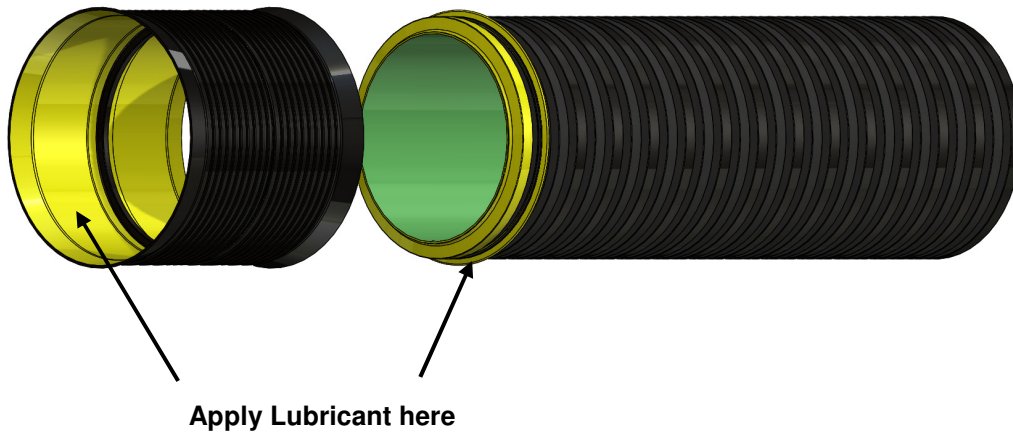
For each of the above sizes, the Seal should be located in the **first** valley of the Pipe, between the first and second corrugation. Jointing is aided by the addition of some lubricant into the valley of the pipe, prior to fitting the seal. In winter months efforts should be taken to prevent the seal falling below 4°C and stiffening up as this can cause jointing difficulties.

1st Valley



Application of Lubricant:

1. Ensure the Seal and Pipe end are clean and apply Naylor lubricant liberally over the Seal.
2. Ensure the inside of the mating Coupler or Fitting is clean and then apply Naylor lubricant liberally to the inside surface.



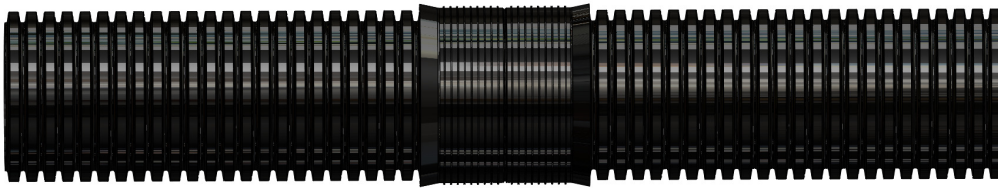
Joining:

1. Push the Coupler or Fitting over the Seal and onto the Pipe, ensuring all surfaces are kept clean during the assembly process.
2. The Pipe should be pushed fully into the Coupler or Fitting until it reaches the end stop.
 - a) **By Hand (150mm):**
For smaller pipe sizes it may be possible to push the Coupler or Fitting on by hand.
 - b) **Using a Lever (225 and 300mm):**
If it is not possible to assemble by hand, then place a suitable piece of timber across the end of the Pipe to spread the load and prevent damage, and then carefully lever the Pipe home.

c) Using Mechanical Assistance (375mm and up):

If it is not possible to assemble by hand or lever, then place a suitable piece of timber across the end of the Pipe to spread the load and prevent damage, and then carefully use a digger or machine to push the Pipe home.

Ensure the Pipe and Coupler or fitting are aligned correctly and that there is no excessive angular deflection.



Backfilling:

Backfill over the new joint in order to hold the piece in place. Joints should not be left for long periods without backfilling, as the Pipe may creep out of the Coupler and/or Fitting causing a gap.

It may be necessary to leave any mechanical assistance in place, holding the Pipe down whilst backfill is applied.

2. AIR TEST / PRESSURE TEST

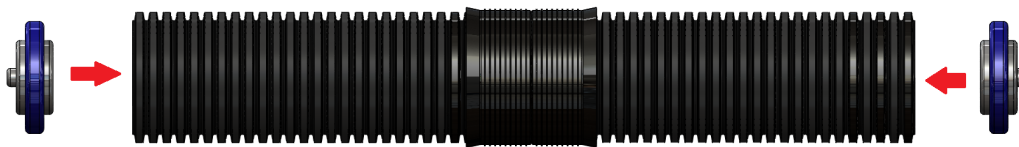
This should be done in line with current highways specifications and using the correct test equipment (e.g. 4 inch 'U' tube Manometer).

Before testing an installed line verify the testing equipment is working by completing a test on a single length of pipe.

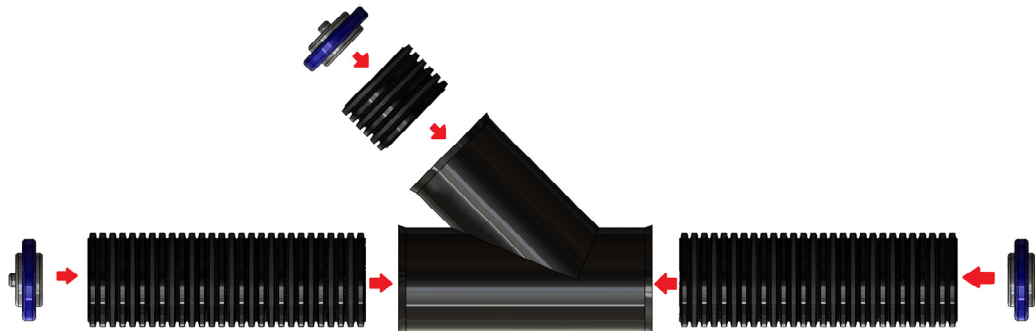
All the stoppers intended for use in the final line test should be checked to ensure they will hold. The rubber should not be cracked and should be free from dirt.

Inserting Stoppers:

Seal the open ends of the Pipe and Coupler or fitting with expanding stoppers, leaving approximately 25mm between the stopper and the end of the Pipe. Wipe the inside of the pipe and the seal face of the stopper before fitting and ensure the stopper is tight and aligned with the pipe.



When testing Fittings, they should have stub pipes fitted, and the stub pipes should be sealed with expanding stoppers.



Setting U-tube Manometer:

Fill the U-tube manometer with water to the required level, ensuring there are no trapped air bubbles.



Connect the manometer to the port of one of the sealed stoppers.

Conducting Test:

1. Increase the pressure until 100mm of water is achieved (equivalent to 0.01 bar).
2. Let the pressure stabilise for 5 minutes, and increase the pressure to achieve 100mm head of water if it drops.
3. Record the pressure after 5 minutes.
4. The manometer should not drop below 75mm head of water (25%) without additional pumping.

Note: Larger diameters may require a longer test period – please refer to BS EN 1610 for details, clause 13.2 table 3.

Troubleshooting:

If the joint does not pass the above test please check the following:

1	Check that the stoppers are positioned correctly and secured squarely in the Pipe.
2	Check that the expandable stoppers are correctly inflated.
3	Check the manometer is not damaged and is filled correctly with water to the zero mark.
4	Check the tubing and bellows are not damaged and are correctly connected to the manometer. Also check the bellows are correctly sealed off during the test with a suitable clip on the air line.
5	Check the Pipes have not crept apart.
6	Check the Seals are not damaged, and have been correctly assembled in the correct position.
7	Check that sufficient lubricant has been applied, otherwise the Seals may roll over and move out of position during the jointing process.
8	Check that there is no dirt or damage around the Seal or Pipe end.
9	Check that there has been no sharp increase or decrease in temperature during the test. For example, the sun coming out and heating up the Pipe causing the air in it to expand.

If all the above checks have been completed, and a leak is suspected, then apply water with detergent around the various mating surfaces and increase the pressure until bubbles appear.