

Directions for Use

1. Preparing for Application

After determining the correct Orifice size for the FDU 100, take the FDU 100 along with the ROOTX chemical to the upstream manhole, where the ROOTX application will begin.

Place the cleaner hose with cleaner nozzle into downstream manhole, as in normal operation, and send the hose with nozzle to the upstream manhole where the ROOTX application will begin. Once the cleaner hose has reached the upstream manhole, pull the hose out of the manhole and lay it on the ground.

You should now have your cleaner hose, ROOTX chemical bags, FDU 100 with Foam Dispersal Nozzle, Plastic Locking Pin, Transfer Tube, and Rubber O-Rings at the upstream manhole where the ROOTX application will begin.

Suggestions: To prevent having to enter a manhole to retrieve the cleaner hose, it is recommended that a Single Wire Hydraulic hose, 15-20 feet in length, 3/4" or 1" in diameter, be used as a leader hose which can be attached to the cleaner hose. Attach the cleaner nozzle to the leader hose and send it to the upstream manhole, where the RootX application will begin. When the nozzle reaches the manhole, use a long pole with a hook on the end to pull the leader hose out of the manhole. This makes retrieval of the cleaner hose much easier and does not require that someone enter the manhole to retrieve the hose. Another suggestion is that the cleaner operator introduces slack in the cleaner hose, which will make it easier to retrieve at the upstream manhole.

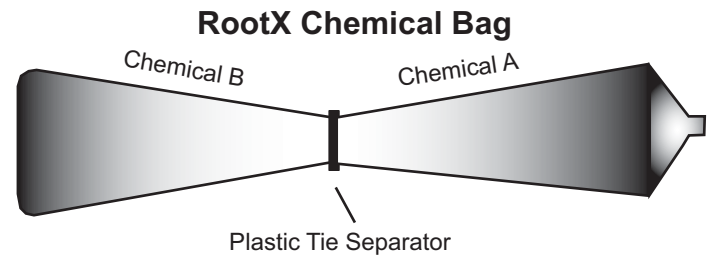
2. Mixing the RootX Chemical

While wearing rubber gloves and a dust mask, open the ROOTX box which contains two 20# bags of ROOTX Chemical. The FDU 100 is designed to hold one 20# bag of ROOTX chemical, which is sufficient to treat up to 400ft. of 8-18" pipe. Take one ROOTX bag and remove the plastic tie in the middle of the bag which separates the two dry components, the white Chemical A and the brown chemical B. Be careful not to puncture or tear the bag during this process. After you have removed the plastic tie, grab each end of the bag and mix the chemicals, by shaking the bag vigorously from side to side. A proper mixture has been achieved when both chemicals A and B form a tan mixture of white and brown chemicals. This process should take approximately two minutes.

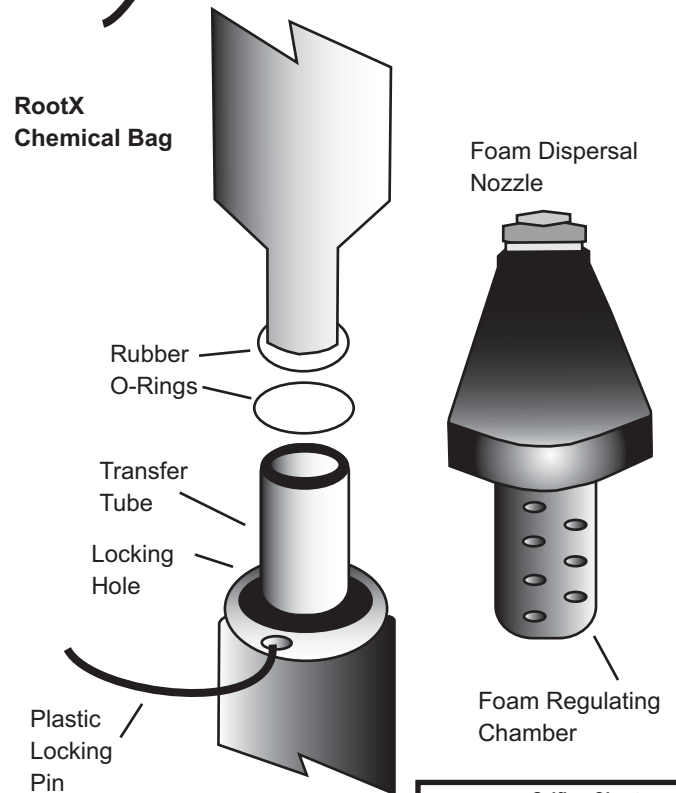
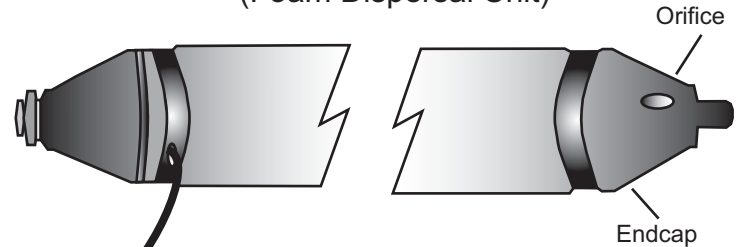
WARNING: A Carbon Dioxide (Co2) build-up will occur during the mixing process. In the event that the bag should become so full of Co2 gas that it may break, you should open a small hole in the end of the bag to release the gas. Continue the mixing process until you achieve a proper mixture.

3. Attaching the Transfer Tube

After a proper mixture has been achieved, open the end of the narrow part of the bag with either scissors or a knife. Open just the end where the bag has been sealed. Take the Transfer Tube which has a single groove at one end and two grooves at the other end, and insert it into the opening you have created, single groove end first. Then place the rubber O-Rings over the bag and into the grooves which the bag material is covering, leaving one groove exposed and uncovered on the outside of the bag. The exposed groove will be used in locking the Transfer Tube into the FDU 100.



FDU 100
(Foam Dispersal Unit)



How to Determine Endcap Orifice Size

Use a 5-gallon bucket or other suitable container to determine the Gallons Per Minute (G.P.M.) at idle of the cleaner truck. Operate the cleaner truck at idle engine speed and fill the 5-gallon bucket using the cleaner hose without a nozzle. Utilize a watch to time the filling of the bucket. Once you have determined the amount of seconds it took to fill the 5-gallon bucket, refer to the Orifice Chart to find out the proper orifice size. Call RootX with this orifice size and the orifice will be placed into the FDU 100 (Foam Dispersal Unit) and shipped to your location. This will ensure that the FDU 100 will maintain proper water pressure and chemical dispersion.

Seconds to fill	Cleaner G.P.M.	Orifice Size
60-51	5	1/8
50-68	6 to 7	5/32
37-34	8 to 9	11/64
33-28	>9 to 10	3/16
27-24	11 to 12	13/64
23-21	13 to 14	7/32
20-19	15	15/64
18-16	16 to 19	1/4
15-14	20 to 21	9/32
13-12	22 to 26	19/64
11	27	5/16

NOTE: Always go down to the smaller orifice if it is less than next full size (i.e. 7.8 gpm use 7 size, not 8)



The Root Intrusion Solution

4. Putting RootX chemical into the FDU 100

You should now have a bag with the ROOTX chemical mixed to form a tan color and a Transfer Tube attached to the narrow end of the chemical bag. Take the Transfer Tube and slip it into the FDU 100 where the Foam Dispersal Nozzle fits. Take the plastic locking pin and insert it into the locking hole. Push the Plastic Locking Pin in as far as it will go. Lift the bag slowly, letting the chemical flow through the Transfer Tube into the FDU 100. Tap both the chemical bag and the FDU 100 occasionally to make sure you have proper flow and that the chemical is settling into the FDU 100. After completion of the transfer of ROOTX chemical to the FDU 100, pull out the Plastic Locking Pin and remove the Transfer Tube from the FDU 100. Then insert the Foam Dispersal Nozzle into the FDU 100 and lock it into place with the Plastic Locking Pin.

Remove the rubber O-Rings from the Transfer Tube and pull the Transfer Tube out of the narrow end of the bag. Be sure to save your Transfer Tube and Rubber O-Rings for future applications. Dispose of the chemical bag by depositing in a sanitary land fill or by incineration if allowed by state and local authorities.

5. Application

The FDU 100 should now be filled with 20 pounds of ROOTX chemical. Attach the cleaner hose to the Inlet End Cap of the FDU 100. Slowly reel in the cleaner hose while lowering the FDU 100 into the manhole. Suggestion: Attaching a string to the Foam Dispersal Nozzle end of the FDU 100 will enable the worker at the upstream manhole to lower the FDU 100 into the hole, while the cleaner operator is pulling the cleaner hose back slowly, without entry, while the operator is slowly retrieving the cleaner hose. The string should be attached in such a manner that it will not hang up in the pipe during the foam spray application.

Once the FDU 100 is placed in the hole, the cleaner operator should be signaled to start the water, and only run the Cleaner at an engine idle speed. The worker at the upstream manhole should verify that foam is emitting from the nozzle. Once the foam dispersal has been verified, the FDU 100 should be pulled through the pipe at a speed no greater than 20 feet per minute.

6. Finished Application

The ROOTX application is finished when the FDU 100 reaches the downstream manhole. Smaller sized pipes require gently shaking and pulling by the operator at ground level, in order to retrieve the applicator. After the FDU 100 is removed, unhook the cleaner hose and detach the Foam Dispersal Nozzle. Then wash out any excess chemical with a hose, making sure that the wash water goes directly into the sewer through the open manhole. You are now ready for another application.



Cleaning the line



RootX Application

Direct Application Method without the FDU 100

RootX is a very flexible product, not only can it be applied in conjunction with a Cleaner Truck, but it can also be applied by pouring the self-foaming RootX directly into the pipeline. The following is the method of Direct Application or pouring of RootX directly into the pipeline.

1. Take a 40-pound box of RootX, which contains the two pre-packaged 20-pound chemical bags. Both components in these bags should be mixed so that the proper foaming action is created. This is done by releasing the plastic tie which separates the white chemical A and brown chemical B. Shake the bags back and forth vigorously until the brown and white components are thoroughly mixed.

2. After a thorough mixture is achieved, pour the RootX chemical directly into the upstream manhole, follow the pouring of the chemical with 20-30 gallons of water. The water activates the foaming action of RootX. The foam, acting as a carrying agent, will fill the pipe with the root killing chemical. The foam can then be carried down the pipe with the existing flow or by running a cleaning nozzle about 100-200 ft. up the pipe and then retracted, from the downstream manhole. This creates a vacuum that draws the foam down the pipe even farther.

Another effective application of RootX is to pour the RootX directly into the pipe and plug the pipe at the downstream manhole, and soak the roots in the RootX root killing foam for one hour.

40 pounds of RootX poured directly into the pipeline will effectively treat 300 ft. of 8-10 inch line.