HOBAS®

Recommendations for Cleaning FRP Pipe

Technical Advice

Engineered to Endure™

If in Doubt, Seek Advice from Hobas Pipe USA, Inc. • 800.856.7473

Cleaning FRP Pipe

If in Doubt, Seek Advice From Hobas Pipe USA, Inc. • 800.856.7473

DIFFERENT METHODS OF CLEANING

There are several methods used for cleaning and dredging of sediments, depending on diameter and the degree and nature of debris. These methods generally use either mechanical means or waterjet to clean the interior of the pipe.

When mechanical means are employed, we recommend the use of rubber or soft plastic scrapers to avoid damage to the pipe's inner surface. Special devices such as pigging systems, which are propelled through the pipes mechanically, with compressed air, or water is another way of cleaning the sediments. Special pigs for FRP pipes are available on the market, which could be used after consulting with Hobas Pipe USA. The cleaning effect is usually dependent upon the pig's size relative to the pipes inside diameter.

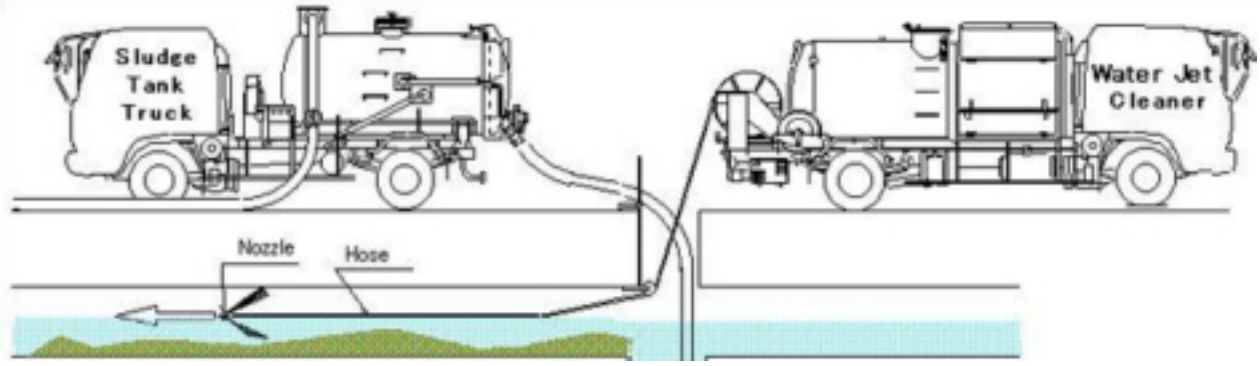
HIGH-PRESSURE WATERJET CLEANING

The use of high-pressure water, emitted through jet nozzles, is a practice utilized for cleaning sewer pipes. However, water emitted under high pressure through a jet nozzle can cause damage to most pipes regardless of pipe material if not properly controlled. Based on experience gained with water jet cleaning of FRPM sewer pipes, the following guidelines must be adhered to avoid damage to the installed pipes.

1. Maximum jet pressure at the nozzle of 1200 psi.
2. Minimum 2.0" clearance between the pipe surface and the nozzle.
3. Maximum 25° water discharge angle relative to the pipe axis.

Additionally the following notes shall be considered during the waterjet cleaning process. The use of equipment or pressures that do not meet these criteria could cause damage to the installed pipe. Specifically floor cleaner models which are made for heavy debris removal are generally not recommended.

Figure 1. Schematic of high-pressure waterjet cleaning

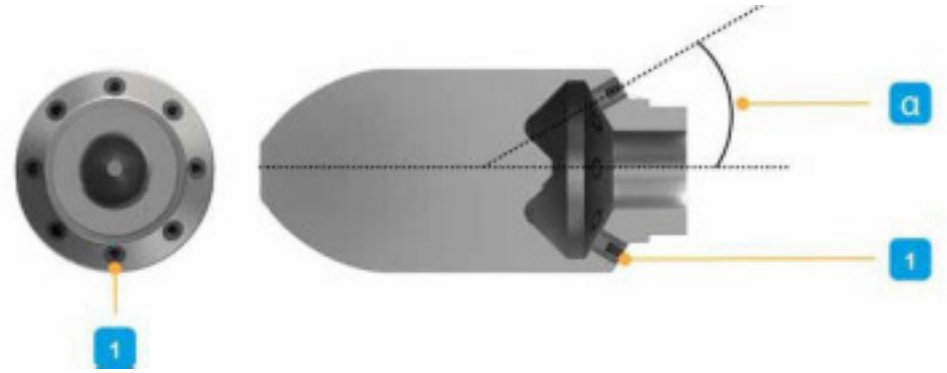


HIGH-PRESSURE WATERJET CLEANING (CONT)

Maximum pressure at the nozzle is 1200 psi. Due to the smooth interior surface of the FRP pipes, adequate cleaning and removal of blockages can normally be achieved below this pressure even in pressures less than 900 psi.

- Nozzles with jet holes around the circumference are preferred. Nozzles with cleaning chains or wires, as well as rotating, aggressive or damaging nozzles must be avoided.
- There shall be no sudden impact of the nozzle touching the pipe wall.
- The water discharge angle (a) must be between 6° and 25° relative to the pipe axis, as the smooth surface of the material inhibits adhesion and only washing of the interior may suffice. Figure 2 presents the position of jet holes and the discharge angle position.

Figure 2. Nozzle for high-pressure cleaning where 1 is position of jet holes and α is the angle of discharge



- The number of jet holes should be 6 to 8 and the hole size must be at least 0.01 inch.
- Since jet cleaning equipment is generally self-propelled, minimizing the weight of the equipment is important to facilitate movement. The external surface of the equipment shall be smooth with a maximum weight of 10 lbs and a minimum length of 7 inches. For small and medium range diameters (DN12 - 41), lighter equipment (approximately 5 lbs.) shall be used.
- The moving speed of the equipment shall be no more than 1.5 ft/s in order to prevent any impact damage. Speed of advancement of the equipment should be controlled and uniform. Avoid stopping the nozzle during the cleaning procedure. When inserting the nozzle into the pipe, care should be taken to prevent it from hitting the pipe wall.
- Jetting/swabbing sleds with several runners give a greater distance between the nozzle and the pipe wall, resulting in a less aggressive cleaning. Ensure that the nozzle remains at least 2 inches away from the pipe wall. Use guides or spacers to maintain the minimum distance, if necessary.

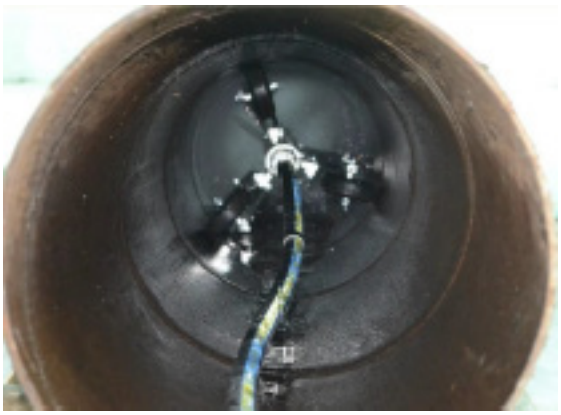
HIGH-PRESSURE WATERJET CLEANING (CONT)

Figure 3 presents the shape of Jetting/swabbing sleds with jet holes of the nozzle. Figure 4 presents another method for fixing the jet nozzle in center of pipe with wheel supports for easier movement of the jet in lower pressure cleaning.

Note that to improve cleaning results, the amount of water injected towards the wall of the pipe should be increased as opposed to increasing the pressure applied. Therefore, if necessary it is recommended to increase the size and the number of inserts in the nozzles.

Figure 3. Jetting/swabbing sleds

Figure 4. Centralizing jet nozzle



If you are unsure about the most suitable cleaning method for your project, please do not hesitate to contact Hobas. Regardless of the methods chosen, test sections should be performed to ensure the specific equipment and procedures are suitable.