

Hypertherm[®]

PowerDredge™
Abrasive Removal System

Design Guide

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One of Hypertherm's long-standing core values is a focus on minimizing our impact on the environment. Doing so is critical to our, and our customers', success. We are always striving to become better environmental stewards; it is a process we care deeply about.

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As an Original Equipment Manufacturer (OEM) you must supply the following:

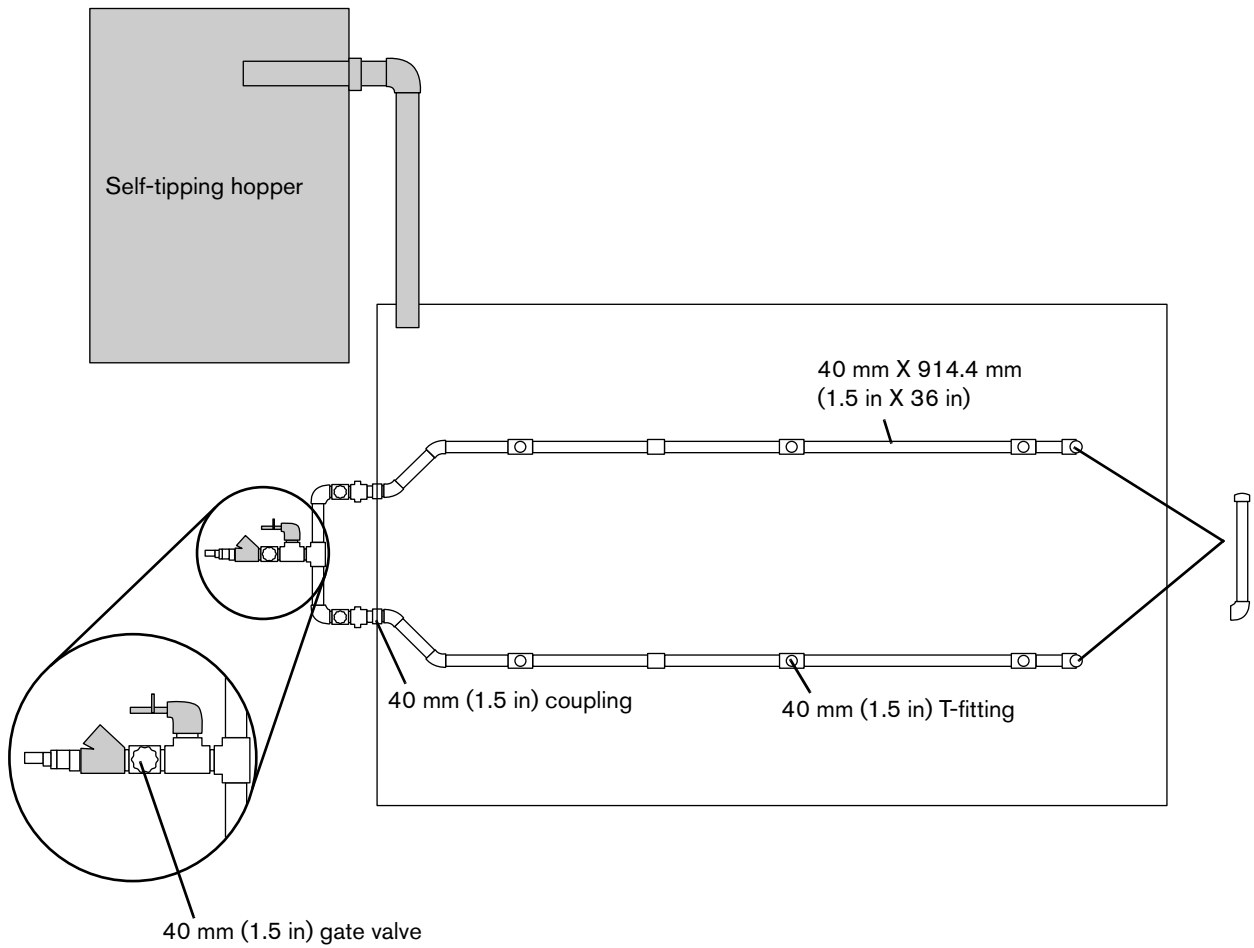
- A detailed layout drawing
- Pipes, clamps, and fittings for the plumbing in the waterjet tank
- Gate valves and the pipes between them
- Abrasive removal system kit from Hypertherm
 - Nozzles
 - Strainer option
 - Overflow option
 - Self-tipping hopper
 - Air quick-disconnect
 - Pump
 - Hoses for the pump
 - Air valve for the pump
 - Dispersion tube


Design the system

Create the layout drawing

- Use the recommendations in this guide to design each system for the specific table. The drawing below is for example only.
- Identify all of the components on the layout drawing. The drawing below only has a few example callouts.
- Identify the lengths of all of the pipes on the layout drawing.
- Give dimensions for the location of the couplings in the wall of waterjet tank.

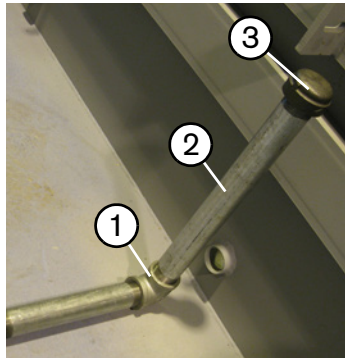
Example layout drawing



 The Hypertherm kit includes the gray parts in the drawing above.

In the waterjet tank

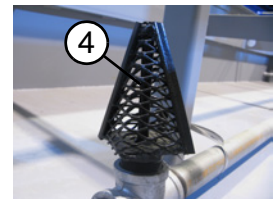
- Avoid obstructions such as extra gussets or tank divisions to let abrasive flow.
- Each branch of the plumbing must have a 40-mm (1.5-inch), galvanized, steel, NPT, female coupling in the waterjet tank wall.
- You must use PTFE tape on the first fitting that connects to the coupling. On the remaining fittings inside the waterjet tank you can use PTFE tape, but it is not necessary.
- Use 40-mm (1.5-inch) galvanized steel pipe for all plumbing in the tank.
- Use 40-mm (1.5-inch) galvanized steel NPT T-fittings at all nozzle locations for connection of nozzles.
- At the end of each branch, there must be a 90-degree elbow ①, a 457-mm (18-inch) piece of pipe ②, and a cap ③. Hand tighten the cap.



- The plumbing must be flat on the floor of the tank.

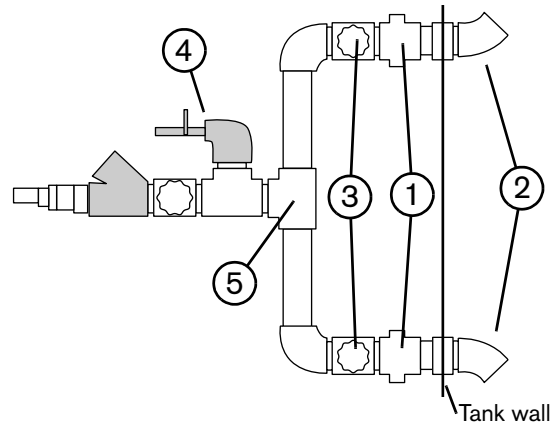
Nozzles


- If applicable, include nozzles ④ in the areas that are out of the range of motion of the cutting head. The cutting process sweeps abrasive into these areas.
- Each nozzle can clear a 457-mm (18-inch) radius circle area. Include as many nozzles as needed to clear the entire floor of the tank with some overlap.
- If the nozzle areas cannot have an overlap, move the nozzles toward the walls rather than toward the center of the tank. Abrasive collects near the walls of the tank.
- Use a maximum of 9 nozzles per pump. You can attach more nozzles to the same pump (up to 18), but you must close the additional nozzles with the branch gate valve when not in use.
- Use a maximum of 4 nozzles per branch.



Outside the waterjet tank

- Each branch of the plumbing must have an external gate valve for isolation.
- Use 40-mm (1.5-inch) galvanized steel pipe on external plumbing up to the air quick-disconnect.
- When you connect more than one branch to one pump, use unions ① for flexibility in assembly between the coupling in the tank wall and the gate valve.
- All branches ② that connect to one pump must come together after their individual gate valves ③ but before the air quick-disconnect ④
- All branches must end in a 40-mm (1.5-inch) galvanized steel NPT T-fitting ⑤.



 The Hypertherm kit includes the gray parts in the drawing above.

- Use another gate valve after the air quick-disconnect.
- Use PTFE tape on all external fittings.
- Make sure that the overflow that goes into the tank is at least 76 mm (3 inches) lower than the water height in the self-tipping hopper.

Install the system

To install the system, refer to the *Installation* section in the *PowerDredge™ Instruction Manual* (808990) and follow the layout drawing that you have created.