



Impedance Heating System Solves Application Challenges

Impedance pipe heating. By now, those words probably conjure an image of a long delivery line: a stainless tubing line in a food plant, or a carbon steel line in a production facility. In either case, just a simple delivery line, taking product from a tank or storage area to a use point. Is this the only place to use impedance? Is it relegated to fixed delivery lines and nothing else? Of course not! While it is a simple and effective method of heating pipe, it can also be a flexible one.

Imagine you are at a shipyard, with large tankers coming in to deliver asphalt. A tanker has just finished unloading and the dockhands are disconnecting the large stainless steel flex lines used to unload the cargo. To everyone's horror, the heating unit on one of the lines has failed. Now you have a flex line full of solid asphalt. What do you do? In the past, the only thing they could do was order a new line for tens of thousands of dollars, and dispose of the old one. That all changed with impedance.

All of the flex lines this asphalt company had replaced over the years could have been repaired, if they had any way of emptying the asphalt from the line first. But how do you apply impedance heating to a line that can be anywhere? It is not practical to move the line. In the past, a filled line had to be cut into sections for transport. The answer is to take an impedance system to the line.

A universal impedance system was designed to be connectable to all of the different sizes and lengths of unload lines they currently used. Banner-Day installed the system onto a specially engineered trailer. Now when a line on the docks failed, they could drive out the trailer, hook up the impedance system, empty the line and send it out for repair. The company was able to see a return on investment with the very first failed line saved by impedance. This application resulted in a cost savings, but what about an application that increased the safety of a plant?

A small chemical manufacturing plant was having a problem. The exhaust gases from their reactor vessels were leaving a residue on the inside of the exhaust piping. Periodically, the maintenance crew would need to clean the inside of the lines. The catch was that the residue material was extremely flammable. Just a small spark could result in a fireball coming out of the line. The solution was to keep the line hot enough to stop the residue from forming in the first place. Unfortunately, with the exhaust gases being over 1000deg F, they could not find a method that worked. That is until they discovered impedance.

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With an impedance system, high temperatures are not an issue. Unlike electric or steam trace, the limits of an impedance system are the material limits of the pipe to be heated. By designing an impedance system to maintain the line above the condensation point, the environment was changed so the residue they normally experienced did not form. The next time the maintenance crew opened up the pipe for cleaning, they discovered that the inside was just as clean as it had been right after they cleaned it last. Where other heating methods failed, an impedance system was able to eliminate a hazardous condition, and save the company time and money in maintenance expenses.

Whether it is a portable system, a special high temperature application, or a standard delivery line, impedance has the flexibility to meet a variety of needs. Don't find yourself only looking at impedance as a better alternative to heat trace. Use your creativity and consider impedance heating as the flexible heating method it is, and you no doubt will be surprised at the many problems it can solve.

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