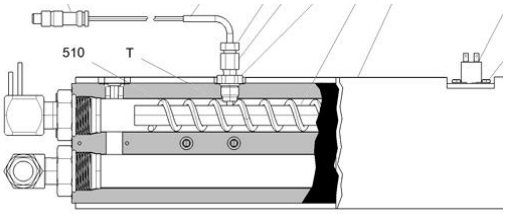
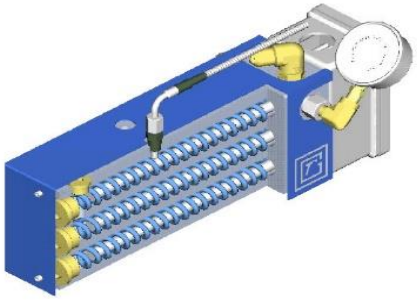
50-year-old Preheaters



These preheaters used to be just pipes with these same fire rods and steel springs inside of them. Now in a compact sq aluminum case but not a lot of thermal mass.

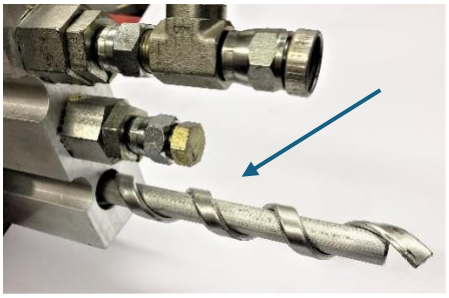
The springs are still steel typically 18" long that have only a btu of 27 Where Aluminum has a wow factor of 136 Btu's to transfer heat into the fluids.

Each steel Spring loses 100 PSI pressure in each preheater pass typically times 4 equals 400 psi loss in pressure because of just the springs! Have test videos.



Two old-style preheaters

HD aluminum spiral over fire rods. Notice the large spacing—no PSI loss



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This is the same for each side ISO and Resin 400 # loss in each component side.

Fire Rods should not be in the component fluids as they can burn and contaminate the chemicals. Example when the old fire rod just has a TC pressed against the outside of the fire rod with a loose spring that cannot hold it stable the fire rod warps, you loose contact and with in seconds the fire rod goes up to 1,000 ° F burning the chemicals.
If you must and had to use a fire rod in your products. At Lease use the Aluminum Spiral Pictured above and the long spiral. With this on the ½" fire rod it has 7/8" gap between the flutes and will hold the fire rod stable and not move when it heats up. This aluminum spiral now has NO pressure loss giving you 400 more psi of pressure and also a transmission rate of 136 btu heat transfer, should have been fixed 50 years ago.
The Fire rod for the past 40 years that I know of now has the thermocouple wires come out of the fire rod controlling the heat from inside not allowing it to spike or overheat. See below on the next page, This is an OLD Not recommended method. Look in any manual by the manufacturer and see where they attempt to address this problem.
For all of the above Reasons it has been proven and advised to not have the fire rods in the component Fluids!

The thermal conductivity of aluminum is 136, mild steel is 26.0 – 37.5, and stainless steel is 8. This makes aluminum the best metal for transferring heat into liquids. All preheaters in the market currently use steel springs over fire rods, the poorest method to transmit heat into resins. Thick aluminum springs and aluminum cylinders for thermal mass greatly improved performance. Each steel spring can cause 100 #'s pressure loss!
Present proportioners are not insulated and lose heat from the preheaters to the heated hoses; aluminum manifolds mounted on a cold aluminum chassis lose 25% of the heat in this section.

Massive preheaters draw huge amperage with no insulation to the tubes that control the flow of the products from the drum to the proportioner. Once the fluids leave the preheaters in small metal lines with no insulation, the fluids cool or heat back to ambient temperature quickly.

15,000-watt preheaters and 40 KVA generators that cost a lot per day for fuel are not efficient in our systems. We heat our 500 lb. drums with little 500-watt blankets that only draw 4.16 amps on 120 volts. This is useless with uninsulated supply hoses. We need to control the temperatures of both fluids from the drum to the gun with less amperage draw than we are presently using. **See SPFA TT – G10.** The contractor can do a great deal in controlling temperatures now. Heat tracing your supply line from the drum to the proportioner alone will control the beginning heat to the system. We need to gradually heat the materials and control temperatures all the way from the drums to the gun!

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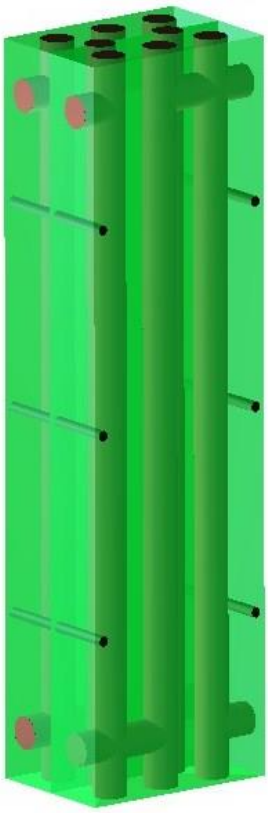
Installing a 400-watt heater at 4.16 amps at the foot valve of the B resin pump can change the flow ratio in the system. The B resin is sensitive to heat and cold and this affects spray ratios.

An unheated resin hose in winter will lose all of your heat long before it gets to the meter if not spraying constantly. Summer heat could cause frothing and unable to pump. Proper insulation of your supply hoses from the drums to the proportioner is vital to maintaining proper temperatures through your system. Strategically placed low wattage heaters can reduce the size of your generator, fuel consumption, and maintenance costs and still give ample heat to the spray gun.



If you feel heat from your hose outside in the winter laying on the ground; you're lacking insulation on the spray Hose! Too many amps are being used to heat our present-day systems with a demand for huge generators with higher operating costs.

Fire rods that heat the chemicals directly can cause damage to the chemicals as well as destroying the outside jackets of the fire rods. They cause 100 #'s pressure loss in every 18" of steel springs.

To the right is a Preheater that has 2 -3/4" diameter fire rods To heat the thermal mass aluminum with 3 pass tubes and with helix ribbon twists. Several options for the best temperature control. Incased with 3 different insulations.

All insulation Contractors need to Do the Job Right; Insulate your equipment!

This is a Fire rod with both the 230V and the TC wires from the inside.