PROPER PREHEATING TORCH SETUP

The preheating process is one of the most important factors in thermite welding. This is why it is crucial for the welder to have a proper preheating torch setup in good, working order with safety and precision in mind. Regardless of the manufacturer, welders need to have the correct style of torch for thermite weld applications. Likewise, it is necessary to have the proper hose length and hose grade for use around high temperatures and oils.

Railtech strongly recommends incorporating In-Line Pressure Gages at the torch to drastically improve accuracy during preheats, as well as help to improve overall quality in the weld. In-Line Pressure Gages give the welder control of fine tuning pressure settings and adjustment of the flame, while maintaining constant supervision at the weld. Gas Pressure Regulators that are in good working condition and made for industrial applications, in conjunction with In-Line Pressure Gages, will provide the welder with the tools required for indicating and monitoring changes in pressure.

Flashback Arrestors are a MUST on your fuel and oxygen lines when welding. Maximum safety is having arrestors at the tanks, on the Gas Pressure Regulators, and at the torch.

Railtech Boutet offers all the necessary equipment and hardware to effectively conduct a correct preheat for thermite welding and to give thermite welders total confidence in their equipment.

Proper Torch Setup for Thermite Welding:
- Torch stand
- Thermite torch tip
- Thermite torch body
- In-line pressure gages (At Torch Handle)
- Non-Q.D. Flash-Back Arrestors (At Torch Handle, Recommended)
- ⅜” I.D. Hose, Grade “T” ONLY, 50ft-100ft (Fuel Source, LP)
- Non-Q.D. Flash-Back Arrestors at tanks (Required)
VICTOR TORCH SETUP

Thermite welding requires specialized equipment to be able to handle the intense heat and pressures necessary for this process. Railtech Boutet offers the Victor Torch Setup to properly and efficiently preheat the rail.
SMITH TORCH SETUP

Railtech is Smith Equipment’s official distributor to the railroads for preheating and welding equipment needs. Smith proudly manufactures in the USA.

Smith Torch Tip
(Specs. By Railtech, built by Smith)
2541-0000SM

Smith Torch Tip
22 Orifice Tip

Smith Torch Handle WH200
0382-0015SM

Smith Flashback Arrestors (set)
RCV-2002SM

Smith Regulators HB1500 Series (Oxy/Propane set)
0781-0087SM

Smith Regulator HB1522B-510 (Propane)
0781-0088SM

Smith Regulator HB1510A-540 (Oxygen)
0781-0089SM
PREHEATING ESSENTIALS

In-line Pressure Gages

In-Line Pressure Gages are crucial for determining pressure AT THE TORCH for a successful preheat. Pressures can drastically change due to temperature, hose length, gas levels, flashback arrestors, regulators, etc. In-line Pressure Gages will give you the most accurate pressure setting **at the torch** and provide a reliable indication of changes in pressure.

Flashback Arrestors

Flashback Arrestors are most commonly used in oxy-fuel welding and cutting to stop the flame from burning back up into the equipment and hoses, which can cause damage or explosions. Flashback Arrestors are a MUST on your fuel line as well as the oxygen line when welding. Maximum safety is having arrestors on both the regulator and the torch. Railtech requires functioning Flashback Arrestors at the tank for weld qualification, and strongly recommends them at the torch handle. With regular welding, Flashback Arrestors should be changed 1-2 times annually.

Gas Pressure Regulators

Gas Pressure Regulators differ in size and shape, delivery pressure and adjustment but are uniform in their purpose to deliver a constant outlet pressure for downstream requirements. Please ensure you have the CORRECT SIZE regulator for thermite welding applications.

**SMITH**

**BRASS CONSTRUCTION FOR DEPENDABLE SERVICE IN CORROSIVE ATMOSPHERES**

HB1500 series single stage regulators comprise a complete line of versatile regulators for welding, cutting, heating and other industrial applications. Heavy duty construction and simplified design provides high gas flow and longer trouble-free operation.

3/8 I.D. Grade T Hoses

Grade T hose ensures compatibility with the gas being conveyed and user safety. Additional features:

- **Oil resistance:** When exposed to an oil environment, the Grade R hose may become soft and tacky. This can lead to cover separation from the reinforcement or excessive wear of the cover. Both of these conditions can lead to premature hose failure and decreased service life. The Grade T hose provides protection from oil, both internally and externally, while only the cover of the Grade RM provides this protection.

- **Flame Resistance:** The Grade T hose provides added protection, both externally and internally, when exposed to a flame or hot materials. The tube and cover of the Grade T hose are self-extinguishing and provide maximum safety when exposed to adverse conditions such as hot slag, flash backs or inadvertent flame exposure. The cover of the Grade RM hose also provides this protection. Grade R has no flame resistance requirements.
PREHEATING ESSENTIALS

Railtech Precision Torch Stand

The Railtech Precision Torch Stand is used during the preheating process to finely tune the torch position while preheating the rail ends. The Precision Torch Stand adjusts side-to-side, forward and backward. The smaller adjustment rings on the lower portion, the stem, allow the user to raise and lower the height of the torch when needed and lock it into place for the appropriate height.

The ability to make fine adjustments on the Torch Stand gives the welder the advantage to create an even and plumb preheat. With proper use, the Railtech Precision Torch Stand will reduce costly errors during the preheating process, reducing the probability of weld failure due to an improper preheat.

03800B Hydraulic Rail Preheater

In the Thermite Welding industry, preheating the rail is a crucial operation and conducting a proper preheat is a major factor in determining the success or failure of a thermite weld. Its function lies in not only increasing temperature in the rail-ends and molds, but also the elimination of residual moisture.

Melting the rail-ends during preheat is unacceptable and jeopardizes the integrity of the weld, which can ultimately lead to fractures and weld failures. This is a major drawback to using the Oxy/Pro setup.

The Railtech Hydraulic Preheater is a compact, light weight and easy-to-use tool for heating the rail-ends before welding. It features a hydraulically driven blower and uses bottled Liquid Propane (LP). The Railtech Hydraulic Preheater utilizes Oxygen pulled in from the air, eliminating the need for bottled Oxygen. This preheater ensures the rail-ends never melt during preheating with the QP Process and the torch safely extinguishes once removed from the molds. The Railtech Hydraulic Preheater is designed to be safe and economical to use for any welding crew.

The Preheater Complete Setup includes all the necessary tools to properly set up your welds using the hydraulic preheating process.

Preheater Complete Setup: 22900000
(includes all items listed below)
- Hydraulic Preheater Unit: 22500000
- Precision Torch Stand: 26110000
- Inox Burner Torch: 22600001
- 50” Air-Propane Hose: 22700000
- 20” Flex Hose: 22800000
- Spark Probe Ignitor: HP-SPI-1