



Chemetron Rail Welding Products & Services

Chemetron has been manufacturing and operating electric flash-butt welders since 1957. Chemetron specializes in rail welding systems and equipment which have been successfully used around the world. Our experience as one of the largest contract service welders in North America enables us to design and manufacture equipment that consistently provides high quality and reliability. Our fixed plant and mobile welding unit's robust design and modern control systems provide our customers with the highest quality, most productive flash-butt welders in the industry.

Chemetron welders have the most advanced process controls available in the market. Our computerized systems incorporate operating, quality and diagnostic software in a single package. From our touch-screen interface to the detailed self-diagnostics and quality assurance processes, Chemetron welding systems are designed to be reliable and user friendly. Our welders can be equipped with modems, allowing our technicians to assist with troubleshooting and software updates without the need for a field visit.

Supplementing our welding systems is our fleet of continuously welded rail trains, rail unloading and specialized welding support equipment. Whether you are looking for contract service or purchase, Chemetron Fixed Plant, Equipment and Mobile Welders all provide the quality, productivity and reliability only available from Chemetron.





Fixed Plant Welding

Chemetron Railway Products is one of the world's foremost manufacturers and operators of continuous rail welding equipment. Our fixed plant welders and welding systems are used throughout the U.S., Canada, Mexico and other countries. Chemetron is a leader in its field, with the experience of designing, building and operating its own equipment. The cornerstone of the Chemetron product line is our fixed-plant rail welding production line. These stationary facilities perform flash-butt welding under controlled conditions, efficiently joining a variety of rail section lengths.

The Chemetron production line is engineered for a smooth high production workflow to produce continuous welded rail, which exits the plant onto a rail train.

Features of Chemetron welding equipment include DC powered flash-butt welding machines with rail alignment and computer controls. Automated rail transfers, roller lines, spot polishers, air quench, base grinder and pushers supplement the DCRW welding machines.

The Chemetron fixed plant systems are designed to provide consistently high quality welds, maximum productivity and a safe working environment.





Plant Locations

- Pueblo, CO
- Steelton, PA
- Russell, KY
- Laramie, WY
- Laurel, MT
- Surrey, BC Canada
- Winnipeg, MB, Canada



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Chemtron Mobile Welding Systems

Fully Enclosed Mobile Track Welding Container

For versatility on various gage railways, we offer our Flash Butt Welding Machine as a stand alone container. It is ready to mount on a truck chassis equipped with appropriate hi-rail gear or on stands to use as a portable welding plant or mount on existing flat cars for in-track capability. The user only needs to connect the unit to a supply of fuel and it is ready to weld. The CHEM 110 container has been in operation in Argentina since early 2007 and, after completing approximately 3,500 welds as a portable welder, it was mounted on a flat car and has since produced over 6,000 welds in-track.

General Description

The system is fully self-contained complete with a diesel engine (Caterpillar) generator set with an integral cooling system. All our welding systems are built at our headquarters in Kansas City, Missouri. An electronic control system is provided to furnish welding current to the Chem Series welder unit. This control system also regulates the speed functions of the welding process. Voltage control is by means of SCR's and the process control is accomplished by a programmable controller. A self-contained hydraulic power unit, supplied with the generator, provides hydraulic power for the welding system. An industrial chiller, complete with a circulating pump, is provided to ensure the welding head operates with the correct temperature levels.





Generator

Chemetron DC welding heads are powered by a self-contained Caterpillar® 3406 diesel generator rated at 300 kW which yields approximately 40,000 amps for welding. This replaces the need for the larger 365 kW required for AC machines that yield only 25,000 amps for welding. It also uses all 3 phases instead of just one phase as used in AC welders to reduce the size of the generator. This puts an even load on the generator to reduce wear and tear and eventual maintenance costs. This system is designed for cold weather operation and equipped with an ether starting system. The generator output control system is modified to ensure that a balanced system exists when operating in a single phase mode. All operating controls, coolers, batteries, etc. are included with the generator unit plus a 110 volt secondary system to power the system controls.



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Welder Control

The output from the generator is rated at 460 volts. Welding voltages are varied according to the rail size and metallurgy as driven by the PLC control system. Accurate voltage control and maximum current limit levels are monitored by the controller. The voltage control SCR's are controlled by a specially designed printed circuit board. This board receives commands from the programmable controller. There are programs for several rail sizes. The controls are contained in a shock insulated cabinet divided into two sections: A. Power Control System; B. Electronic Control System

The cabinet is fitted with cooling fans to ensure a stable operating environment for the electronics. A full set of operating controls are mounted on the welding head to allow remote operation of the welding process. Monitoring points are available within the cabinet to allow on site troubleshooting. The control system can be equipped with a phone modem which allows our technical staff to monitor the equipment from our headquarters and change the welding parameters or perform diagnostics while the welding equipment is on site anywhere there is a cellular or satellite signal.





System Control

The integrated control system of using a linear transducer in conjunction with a flow control system and programmable controller ensures that a minimum of operating components are required to perform a weld sequence. All field changes for various rail sizes are accomplished by program selection - there are NO weld cycle overrides available to the operator. All welds meet or exceed the AREMA specifications for flash butt welding of rails.

Weld Data

The PLC continually monitors the weld process. A printout of all weld parameters is provided at the end of each weld cycle and is correlated to the exact weld by custom annotation. Any parameter which exceeds either a customer determined quality guideline or AREMA guidelines is automatically highlighted on the weld print out.





Hydraulics

Pressure-compensated engine-driven double pumps provide power for the welder and crane. All control functions are by means of solenoid actuated valves. The pumps and valves used ensure prompt response to program commands. Welding speed is controlled by high precision proportional flow controls which ensure very accurate welding speeds. A linear transducer ensures repeatability of the flow settings within the program changes. The hydraulic system is self-contained and features an external cooling system for stable operating temperatures. High and low pressure return filters are used in the system for reliable operation.

Chiller

An electrically driven chiller unit is provided to control the welding head operating temperatures within preset limits. Chiller operation is automatic and has adjustable temperature settings.

Ease of Operation

Both the CHEM 110 and CHEM 180 are equipped with simplified operating systems. The weld head is positioned by the "Three Selector" Crane Control. The weld head control is operated by a "Six Pushbutton" control panel and, when clamped and ready, a one-button weld cycle control initiates the fully automated weld cycle that has NO weld cycle override.





Crane

A self-contained twin-arm articulating crane is provided to handle the welding head. The crane arms also carry the necessary cables and hoses for the safe operation of the welder. Design of the crane gives a lifting capacity of 4545 kg for the CHEM 110 and 7727 kg for the CHEM 180. Both provide an outreach of 3.2 meters. The crane can pivot 90 degrees to either side of centerline to allow welding on adjacent tracks. When the crane is retracted into its transit position, the design positions the welder on a pedestal in the crane base to provide a secure unit for travel.





Welding Heads

Both the CHEM 110 and the CHEM 180 series machines are designed to weld rails up to 10,000 square millimeters in cross section by the continuous flash butt process. Typical weld cycles of 180 seconds allow in-track welding productivity of 8 to 10 welds per hour. Integral with the welding head is a device to automatically remove the welder flash material. Construction of the welding head is such that the two halves of the machine pivot and traverse along a central shaft. The pivot action is powered by upper lateral hydraulic cylinders to clamp the rails. Traversing is accomplished by means of two hydraulically inter-connected cylinders. One half of the head contains the specially wound transformers. Transfer of welding current and voltage from the transformer side to the other side is via specially designed shafts in the hydraulic cylinders. Four copper alloy electrode inserts and four mild steel clamp pad inserts provide contact with the rail web. Adjustments are available within the system to ensure proper alignment. A linear transducer is mounted within the welder central shaft and is used to monitor the weld process as well as control the weld speed and position. Output from the device is fed to a programmable logic controller. A system of internal passages ensures that the cooling medium flows continuously through the transformers, welding electrodes, and cylinder shafts. Design of the hydraulic system includes a circulating system to allow rapid warm up of the system during cold weather or for a quick start situation. The head is suspended from its carrier by an insulated adjustable connector.





Our Team

Our company is built on strong communications and we want you to be able to get in touch directly with the person you want to. Below you will find a company directory.

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