

Solutions Flash

Continuous Welded Galvanized/Aluminized Tube Production Benefits from High Efficiency Coating Deposition on Weld Seam

SF-0034.0 – March 2024



Today's Situation

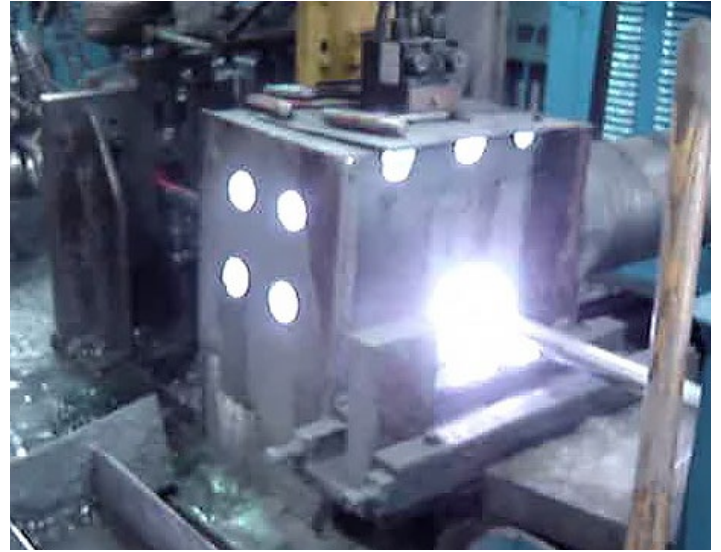
Welded steel tube manufacturers are running their mills faster today than ever, and they need equipment to metallize their weld seams to prevent corrosion and maximize the life expectancy of their tubes. The objective is to achieve a dense, strongly bonded layer of zinc, zinc-aluminum, or aluminum with a specific thickness on the weld seam. To optimize productivity, the spray area should be precisely wide enough to cover the seam, and the application machinery should be adaptable to changes in the desired coating thickness. The coating equipment must be durable, capable of functioning continuously for extended periods in challenging conditions without the need for frequent maintenance shutdowns.

The Oerlikon Metco Solutions

Oerlikon Metco provides a choice of two types of coating equipment for metallizing weld seams. Both options are sturdy and capable of operating efficiently in the challenging tube mill environment. The maintenance and replacement of consumable parts are convenient and swift. Additionally, adjusting process parameters is a simple task, allowing for easy customization based on the tube size, desired thickness, and production speed.

1. Combustion Flame Spray

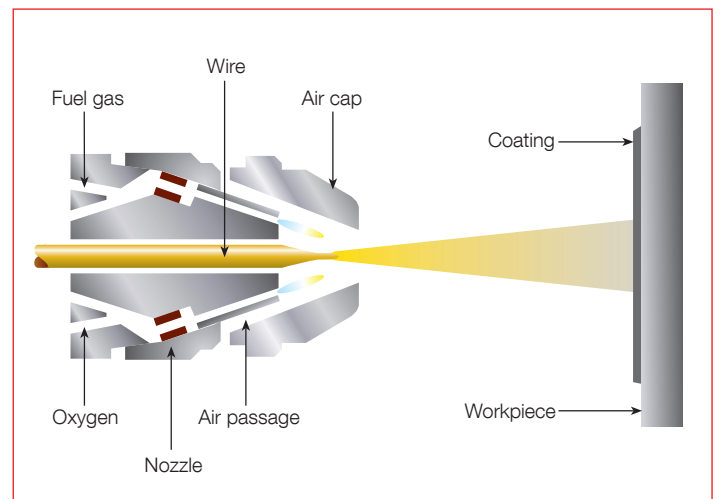
Zinc, zinc-aluminum, or aluminum wire is melted by an oxy-fuel flame and sprayed onto the weld seam. This method is highly efficient, with minimal noise and dust collection requirements. Acetylene, propane, or natural gas can be used as fuel gases. Users have the option to choose between manual and automatic controls, enabling customization of the integration level with the mill controls.



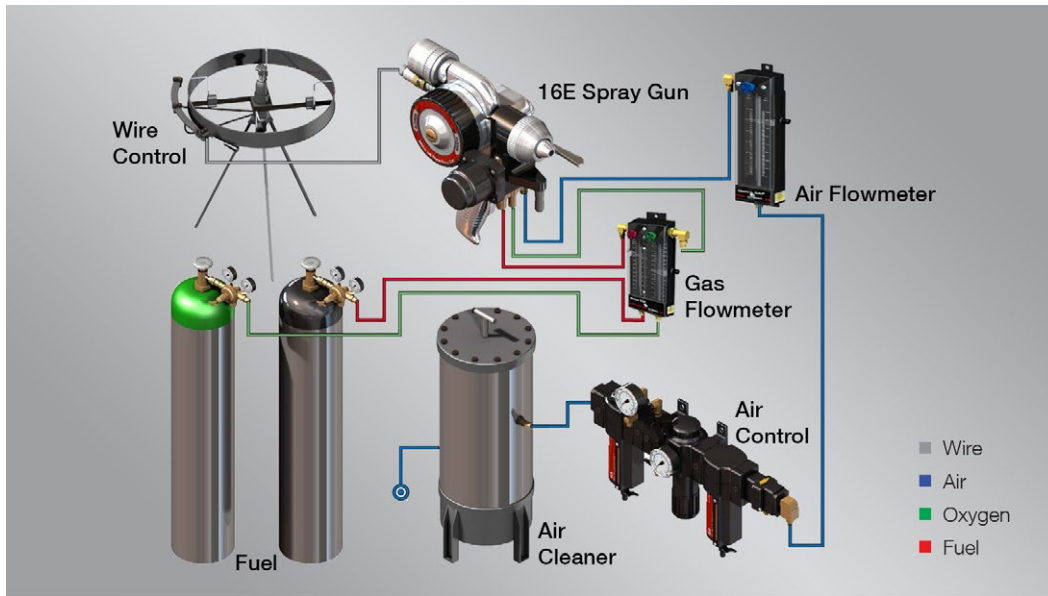
The spray gun is positioned behind the scarfer on the tube mill, continuously applying the coating as the tube moves down the line. Adjusting the spray gun's height allows for accommodating different tube sizes. Any overspray dust is collected within the spray area and safely removed from the mill.



Metco 6K-A Auto Wire Combustion Spray Gun
(shown with optional Flame Detector)



Combustion Flame spray

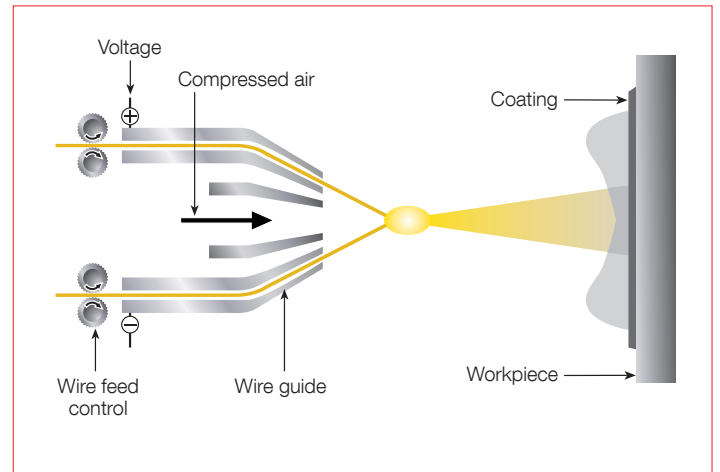


2. Twin Wire Arc

Two zinc, zinc-aluminum, or aluminum wires are melted by an electric arc. The molten metal is then atomized by compressed air and sprayed onto the weld seam. The twin wire arc process can be initiated and halted instantly through manual inputs from the operator or automated by the mill controls. The wire feed rate can be easily adjusted to attain the desired coating thickness on the weld seam.



TUBE 300 Spray System

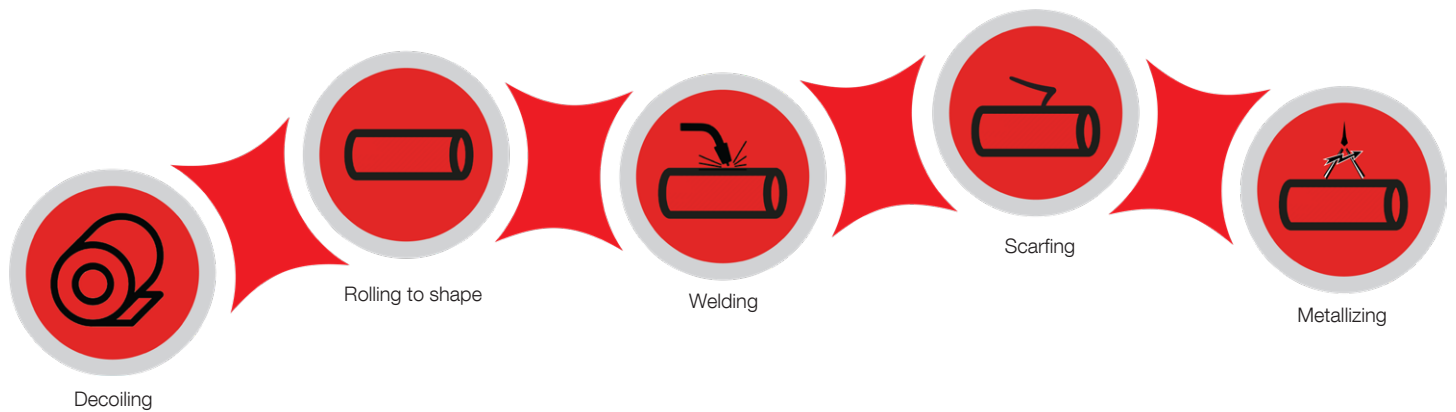


Schematic diagram of the electric arc wire spray process

The Oerlikon Metco Solutions

Oerlikon Metco offers a comprehensive range of spray equipment, peripheral hardware, and coating materials, making them a convenient one-stop solution for all of a tube mill's metallizing needs. The spray equipment has a proven track record of effectiveness and reliability in tube mills

worldwide. Various diameters and package sizes of spray wires are available.



Customer Benefits of Metco

Effective

- Spray guns run reliably, applying a consistent amount of coating on weld seams.

Economical

- The spray guns run off of inexpensive, readily available energy sources

Efficient

- The spray spot is tightly controlled, ensuring the most deposition of metal on the weld seam

Information is subject to change without prior notice.