

# SAWING ACADEMY

## AUTOMATING MANUFACTURING WITH RAIL SAWING AND DRILLING PROCESSES

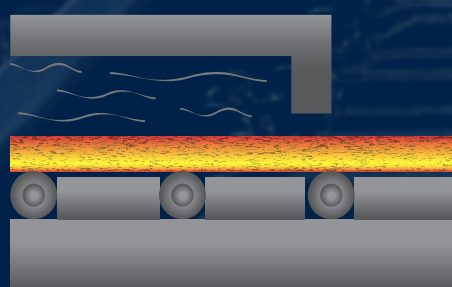
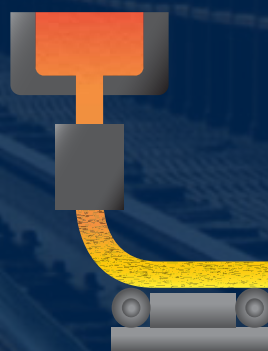


### PRE-TREATMENT

Carbon, manganese, and other elements are melted together to create hard, wear-resisting rails.

### BLOOM CASTING

From there, the alloy runs down a ceramic tube and gets forced through an opening of a mold, which extrudes the steel like Play-Doh into rectangular blocks called blooms.

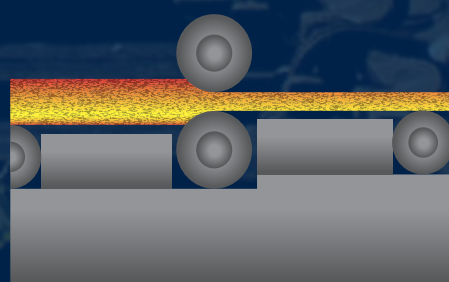


### ROLLING THE STEEL

The blooms then pass through a walking-beam, heated-furnace before entering a rolling mill.

### ROLLING MILL

After they are heated in the furnace, they pass through a rolling mill, which elongated them into thinner rails.

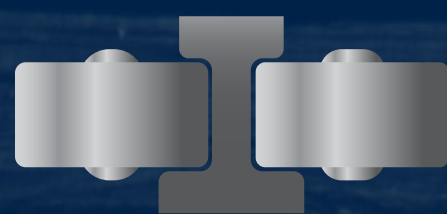
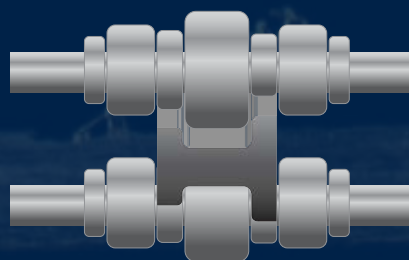


### PRE-BENDING

A shear slices the thinner, longer blooms into four pieces so they can go into another furnace to be prepped for pre-bending and shaping.

### MILLING PROCESS

After the rails are prepared for pre-bending and shaping, they pass through another milling process where a friction saw is used to square off the ends.

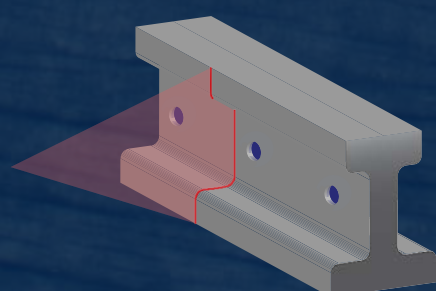
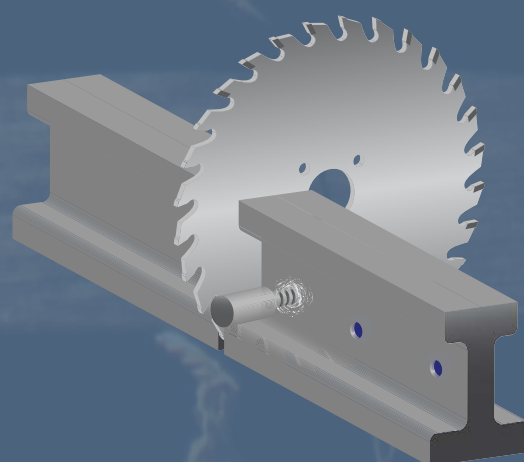


### STRAIGHTENING

The rails are cooled down to about 90°C (194°F) before running through two sets of rollers that flex them vertically and horizontally. This flexing process straightens the rail.

### SAWING & DRILLING

In this step, the rail sawing and drilling processes are combined to increase productivity and efficiency. In an automated rail processing line, the material gets pushed through an infeed system. A circular carbide saw then cuts the rail head while a drill simultaneously creates the holes and chamfers them.



### FINAL INSPECTION

Remote inspection devices, non-contact measurement technologies, and a non-destructive material testing detect and identify both profile deviations and surface defects within the rail in one step.