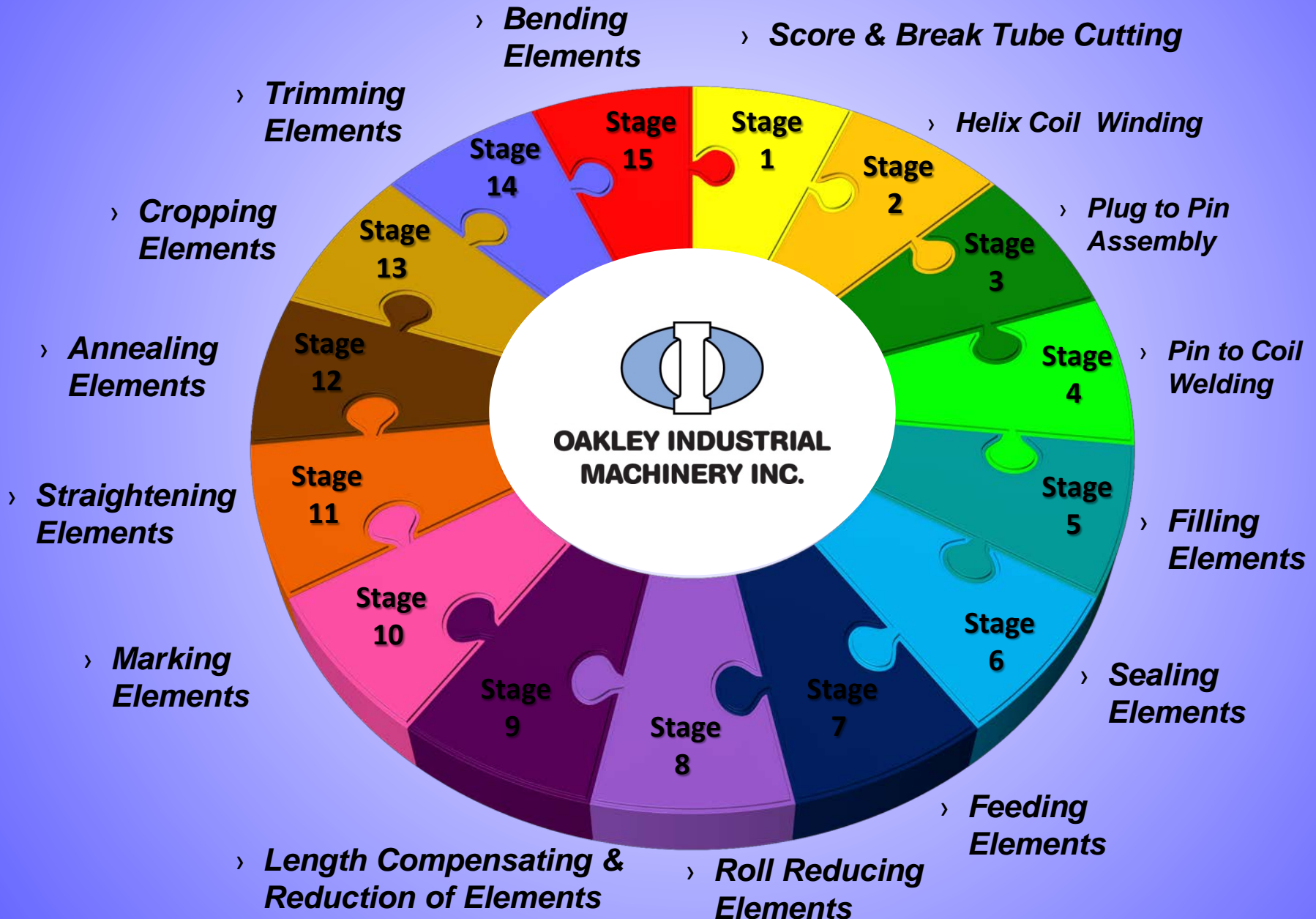
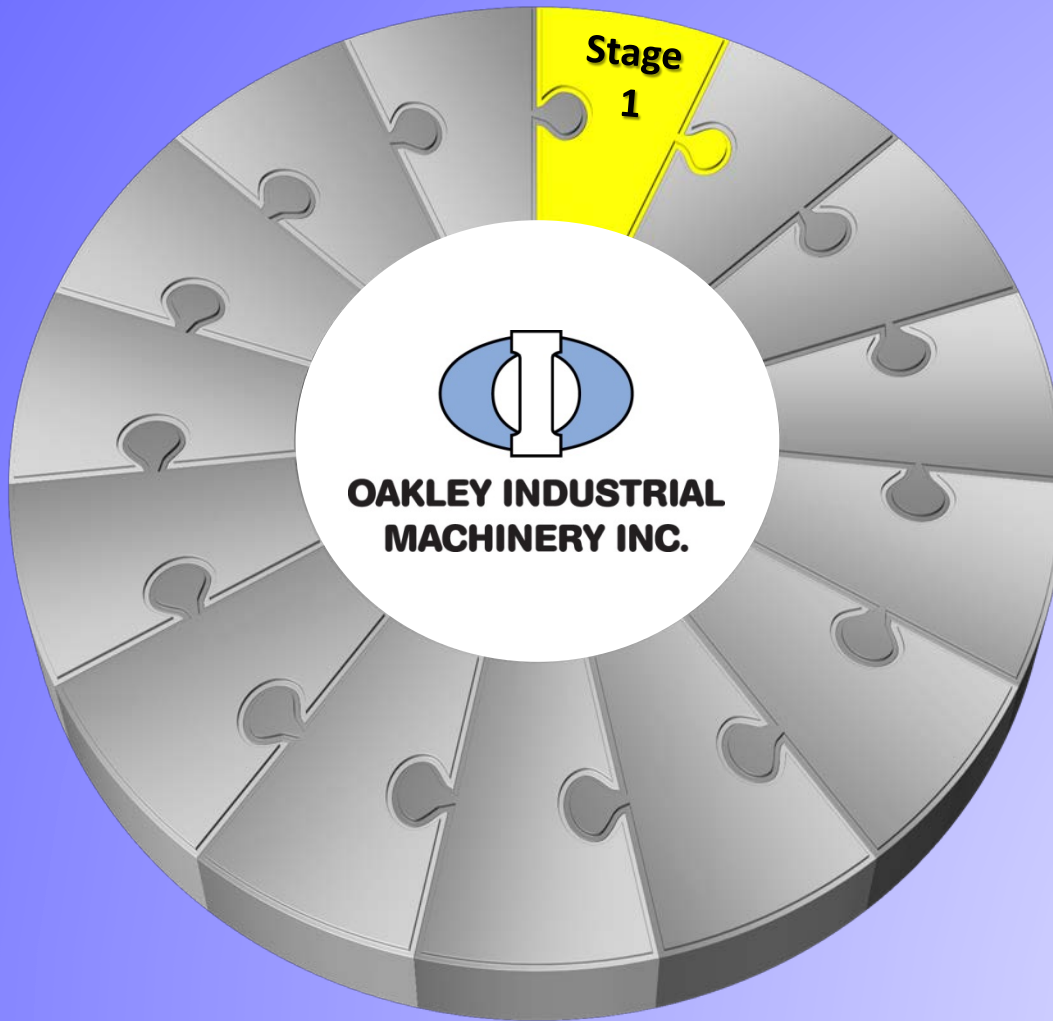


15 Stages Of Heating Element Production



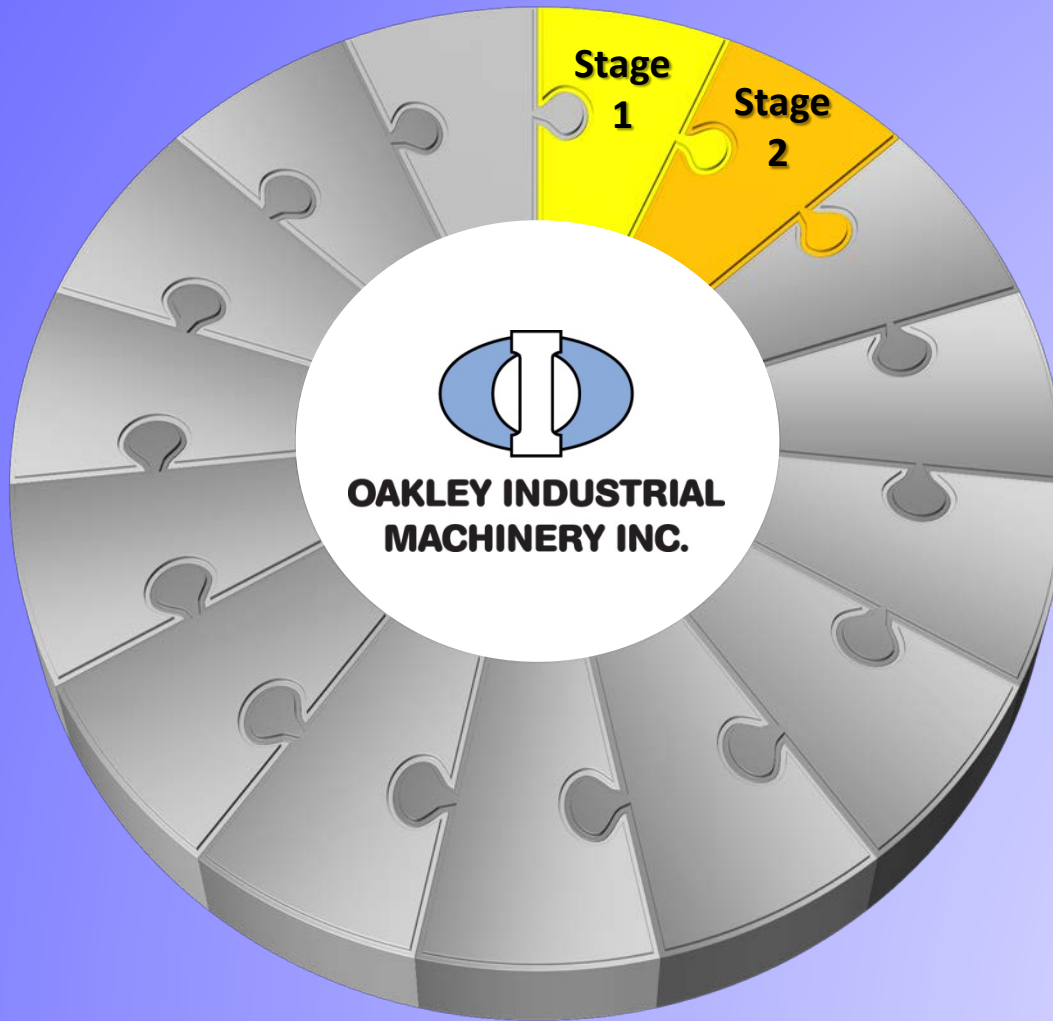
Stage 1: Score & Break Tube Cutting



Stage 1: Score & Break Tube Cutting

- **Score & Break Tube Cutting Machinery** is designed to be an efficient and inexpensive method for cutting straight lengths of tubing into exact finished lengths without producing a burr on the O.D. or the I.D. of the tube.

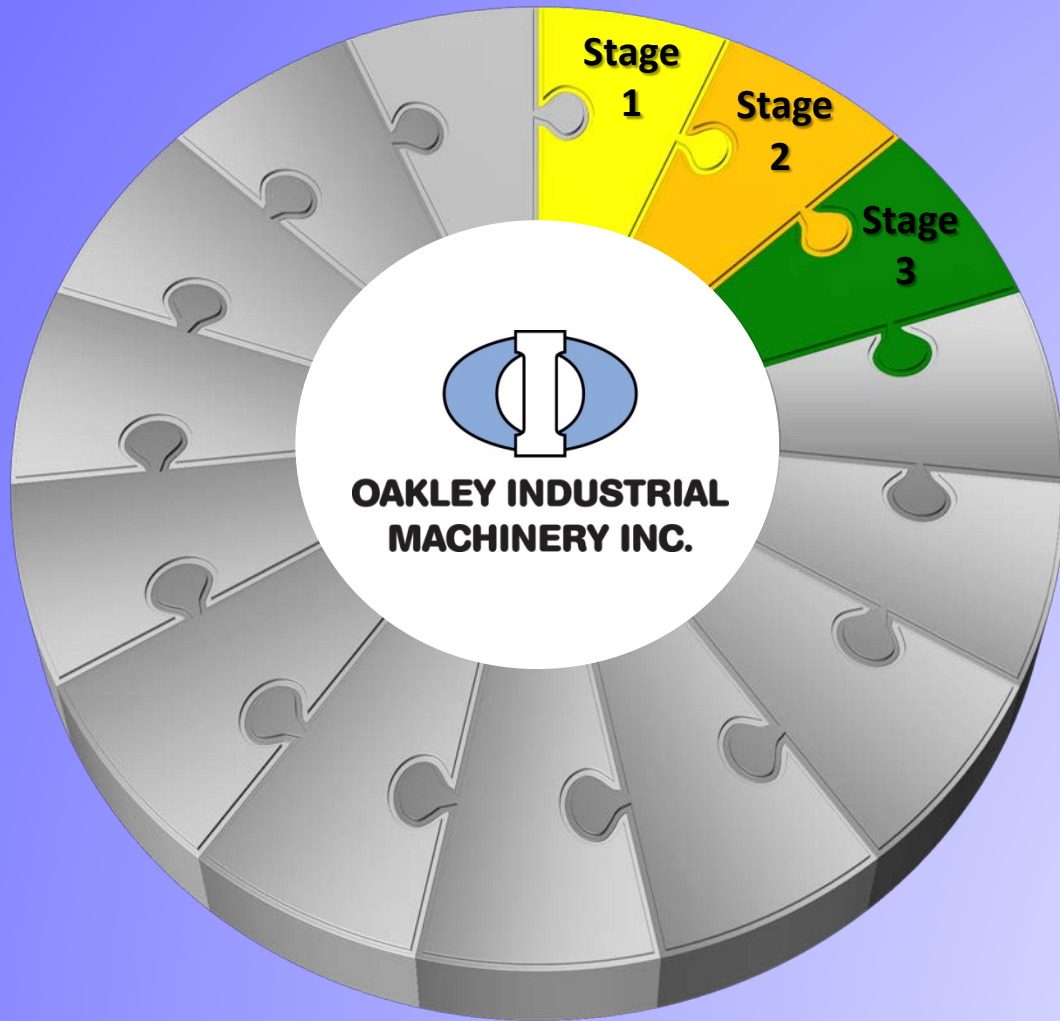
Stage 2: Helix Coil Winding



Stage 2: Helix Coil Winding

- **Helix Coil Winding Machinery** is designed for the proper manufacture of uniform coil wire so a consistent temperature can be maintained inside an element. It will produce coils with very consistent resistance values and with open inside diameters for easy assembly to the terminal pins.

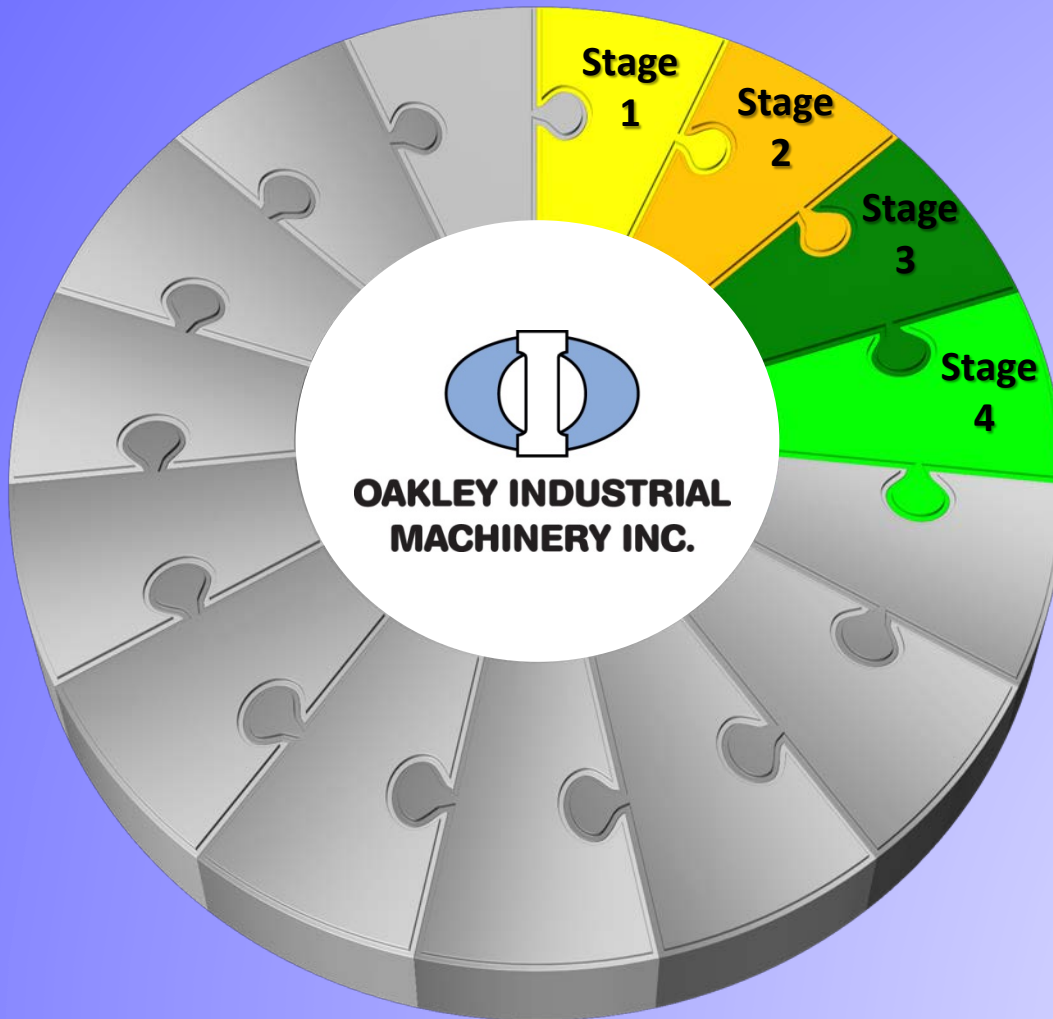
Stage 3: Plug to Pin Assembly



Stage 3: Plug to Pin Assembly

- **Plug to Pin Assembly Machinery** is designed to rapidly assemble the plug that is normally used to seal the lower end of the elements prior to the filling operation to the lower terminal pin.

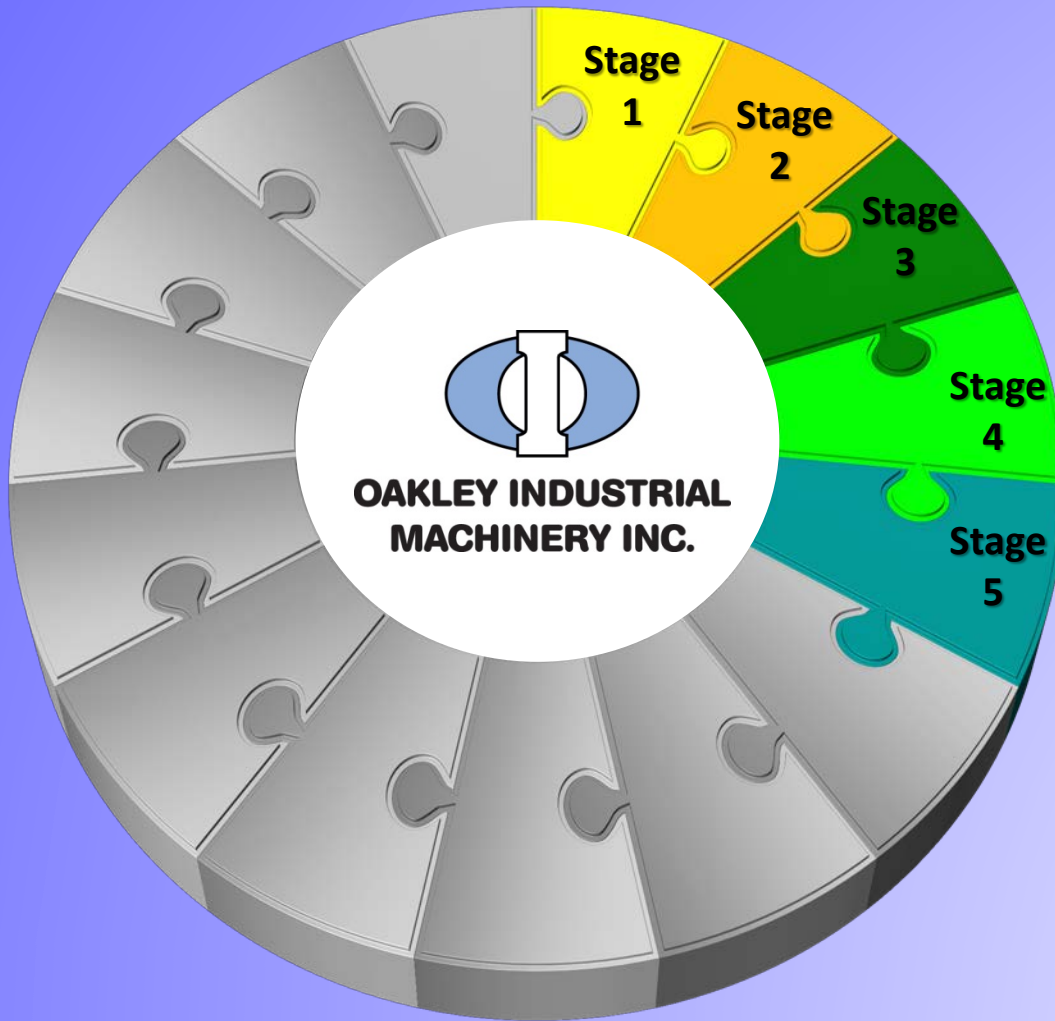
Stage 4: Pin to Coil Welding



Stage 4: Pin to Coil Welding

- **Pin to Coil Welding Machinery** is designed for both manual & automatic high speed production for welding of pins and coils.

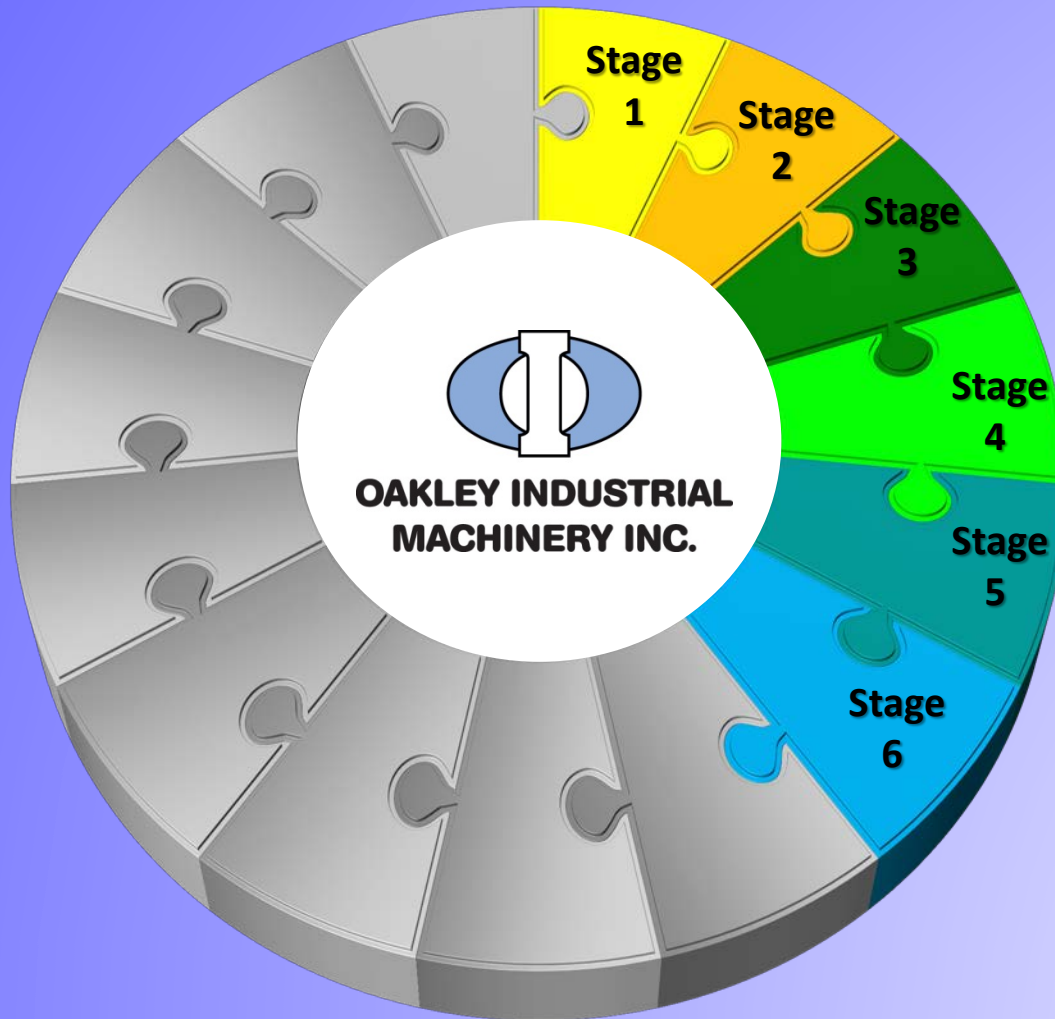
Stage 5: Filling Elements



Stage 5: Filling Elements

- **Element Filling Machinery** is designed to produce a very consistent fill level in all of the tubes filled. This level is also adjustable so that you can create the proper cavity in the tube for your particular upper plug without having to either spill or add MgO.

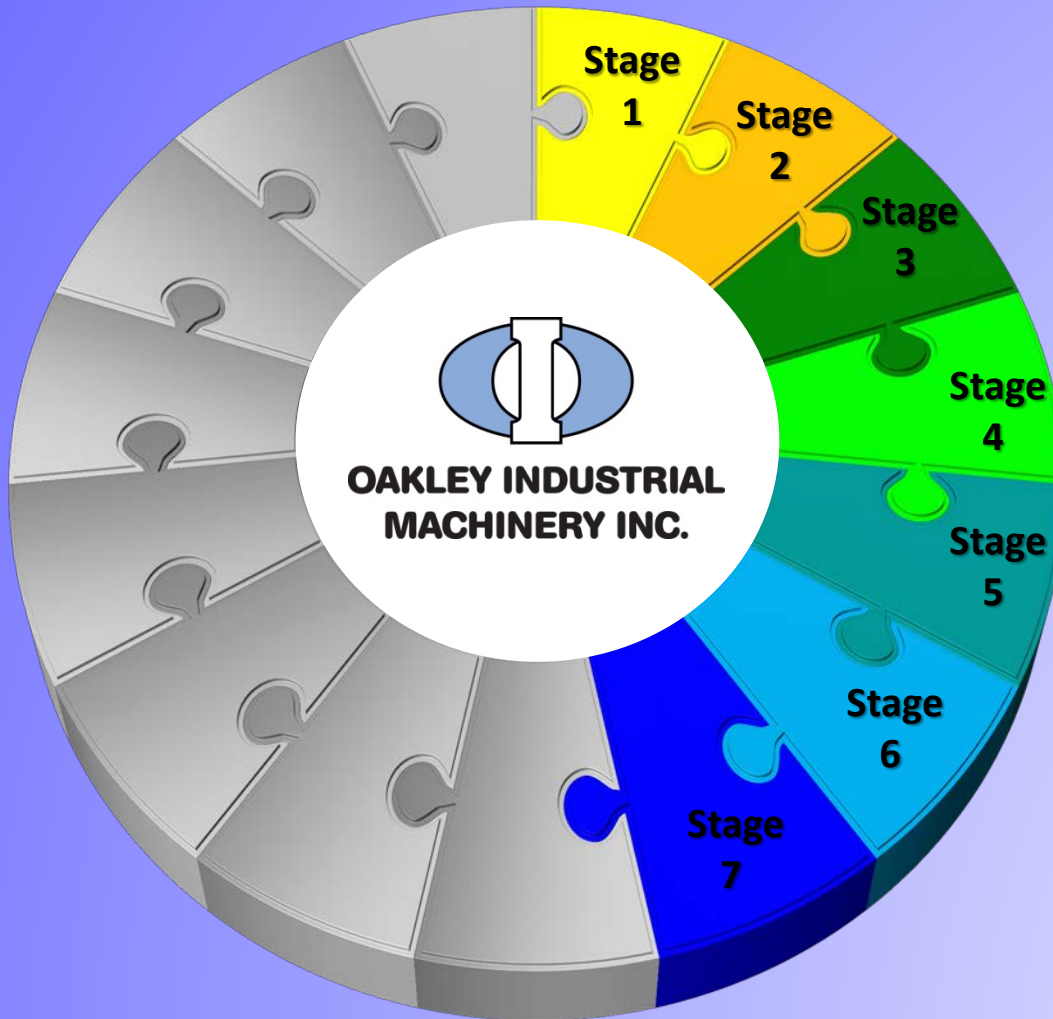
Stage 6: Sealing Elements



Stage 6: Sealing Elements

- **Sealing Elements Machinery** is designed for fast insertion of plugs into the upper end of the elements. Plugs are automatically inserted to a consistent level. Elements without plugs are automatically removed during the production process.

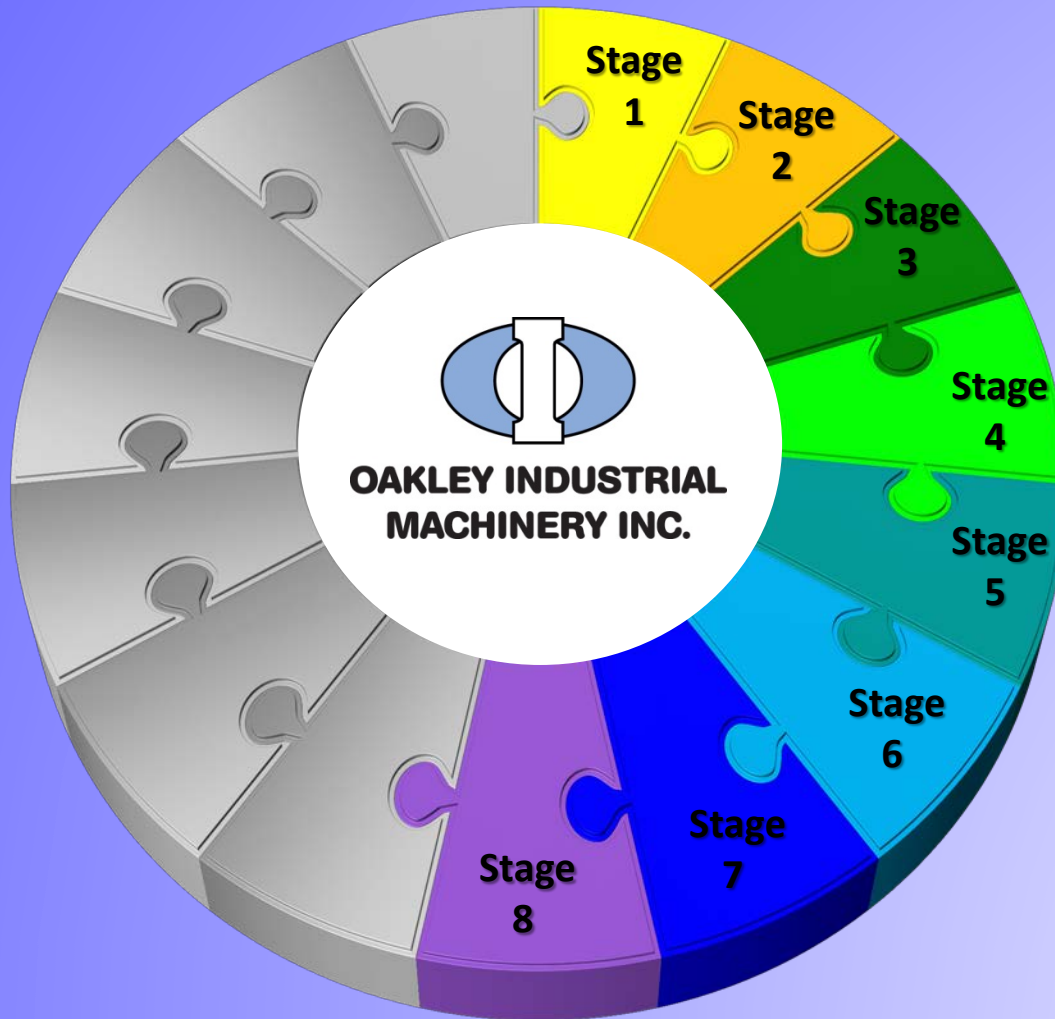
Stage 7: Feeding Elements



Stage 7: Feeding Elements

- **Feeding Element Machinery** is designed to economically feed elements into a roll reducer. These feeders optimize production on the roll reducer while at the same time preventing jam ups that sometimes caused by operators who feed the elements into the reducer without an adequate gap between them. These feeders are a cost effective way to eliminate labor and also reduce scrap.

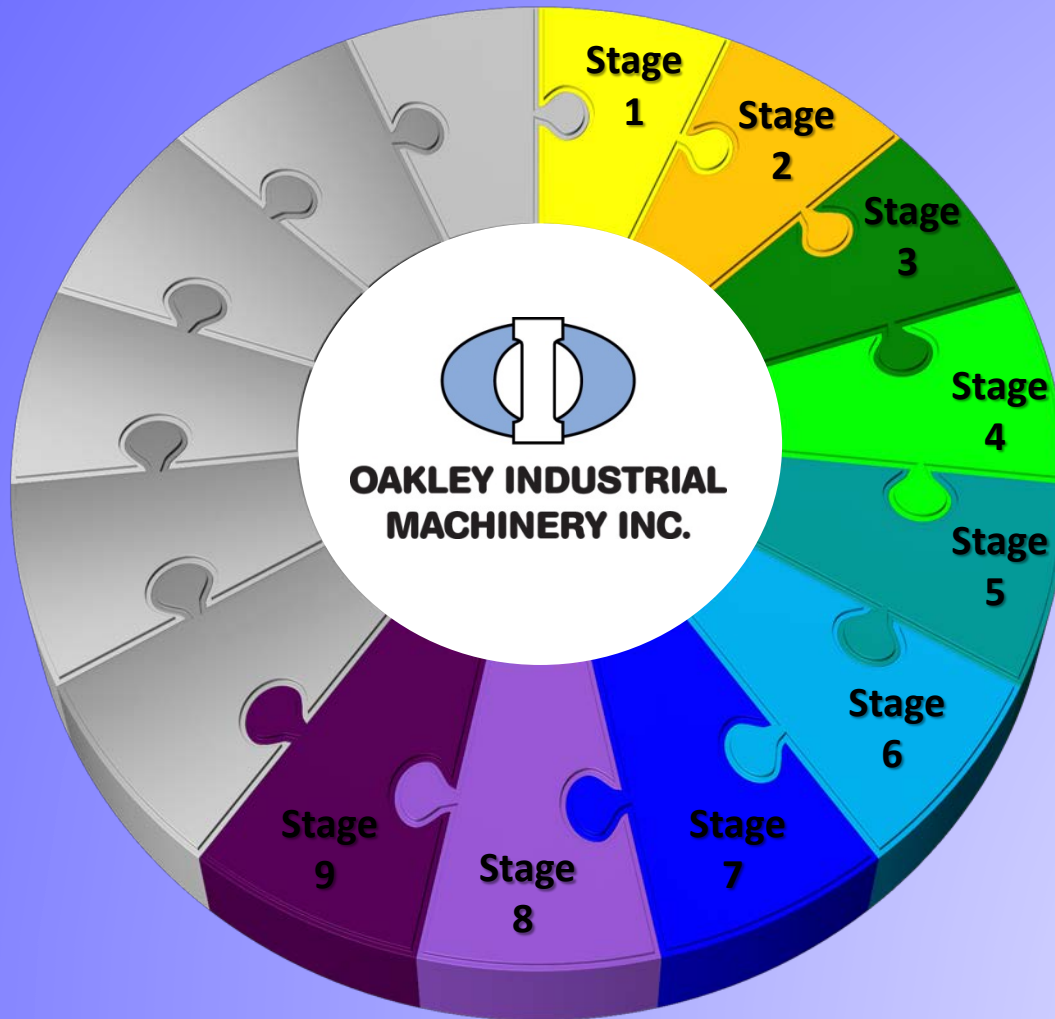
Stage 8: Roll Reducing Elements



Stage 8: Roll Reducing Elements

- **Roll Reducing Elements Machinery** is designed for to reduce the diameter of elements which compacts the MgO.

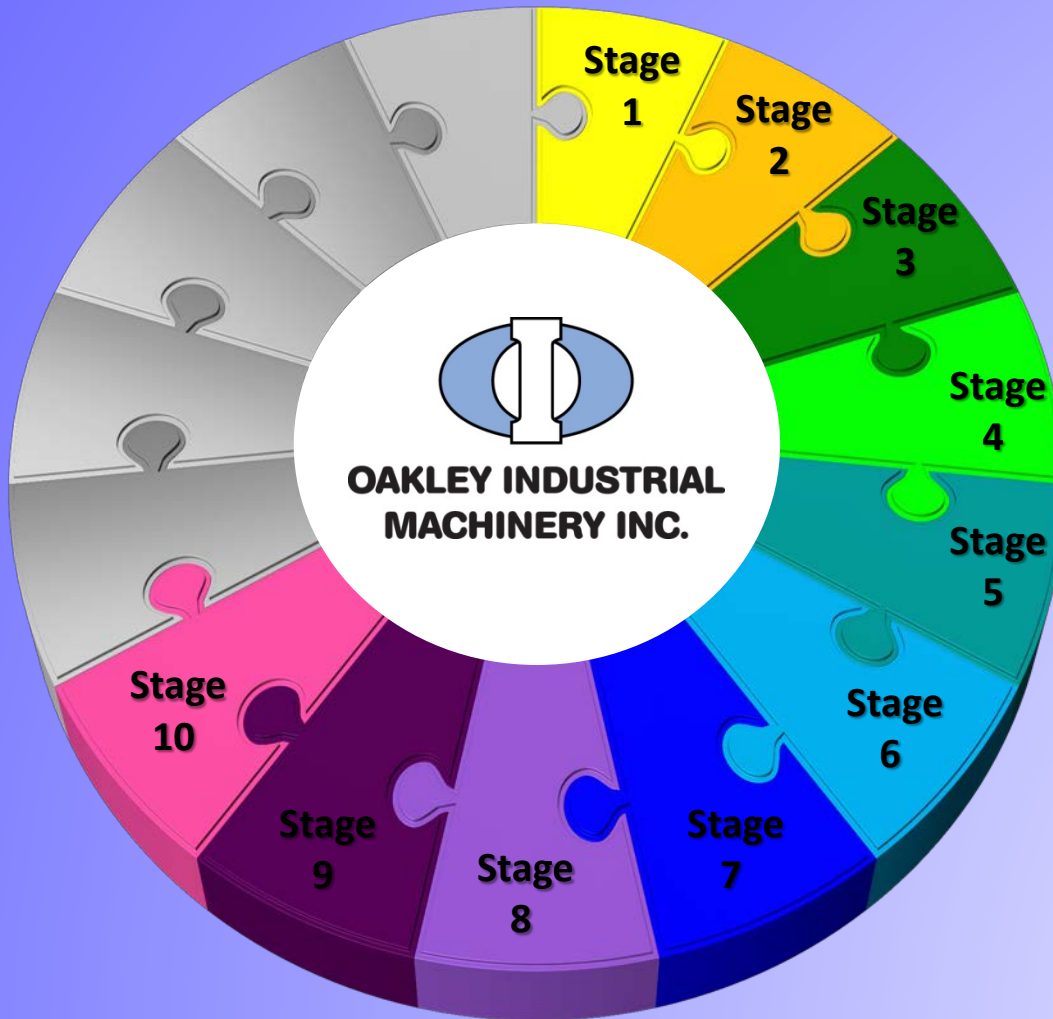
Stage 8: Length Compensator & Reduction



Stage 8: Length Compensator

- **Length Compensator & Reduction Machinery** are designed to produce elements of a consistent length. The length of each element is precisely measured as it exits from the roll reducer, and then the elements are elongated in the Roll to Length Machine to the preset length.

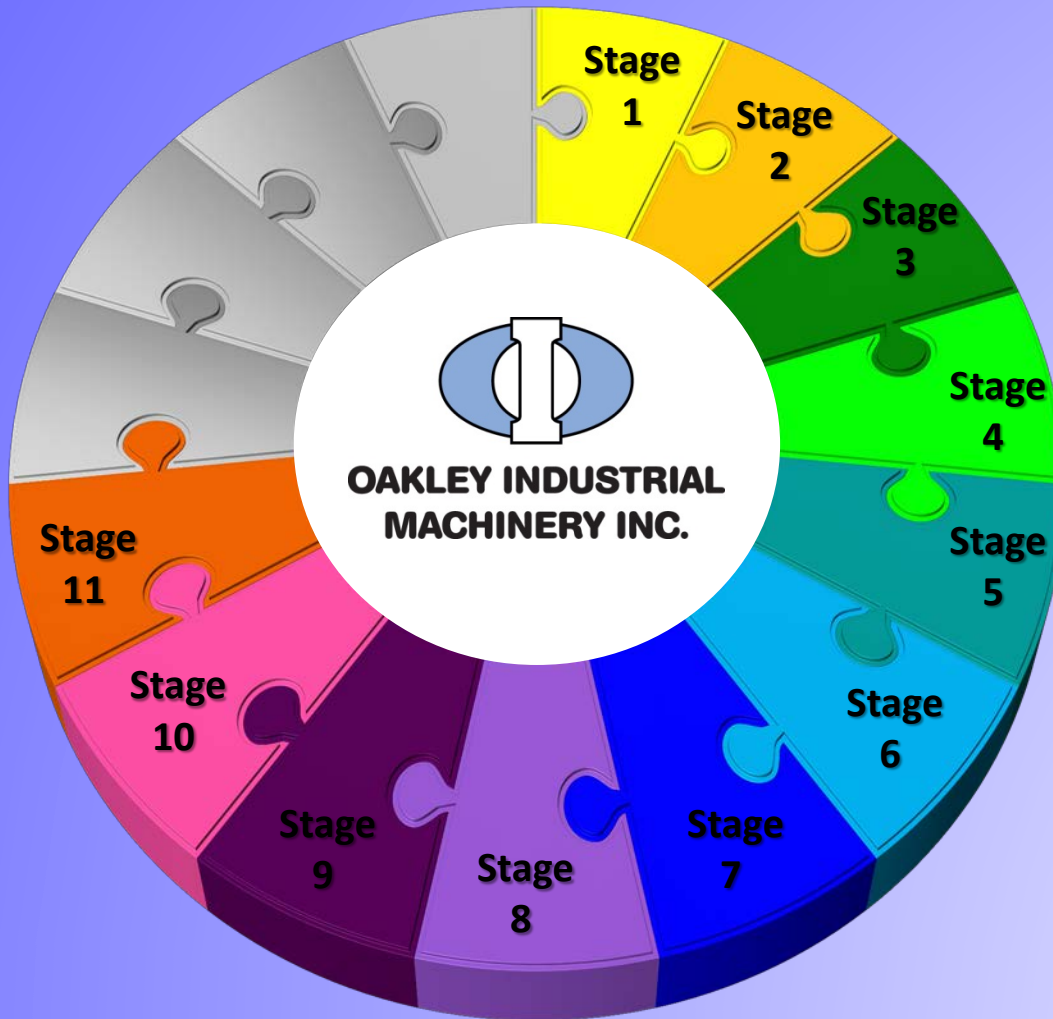
Stage 10: Marking Elements



Stage 10: Marking Elements

- **Marking Elements Machinery** is designed to stamp identifying characters onto heating elements or onto any round or flat piece. This unit is very easy and fast to change for different diameters or for different round or flat pieces.

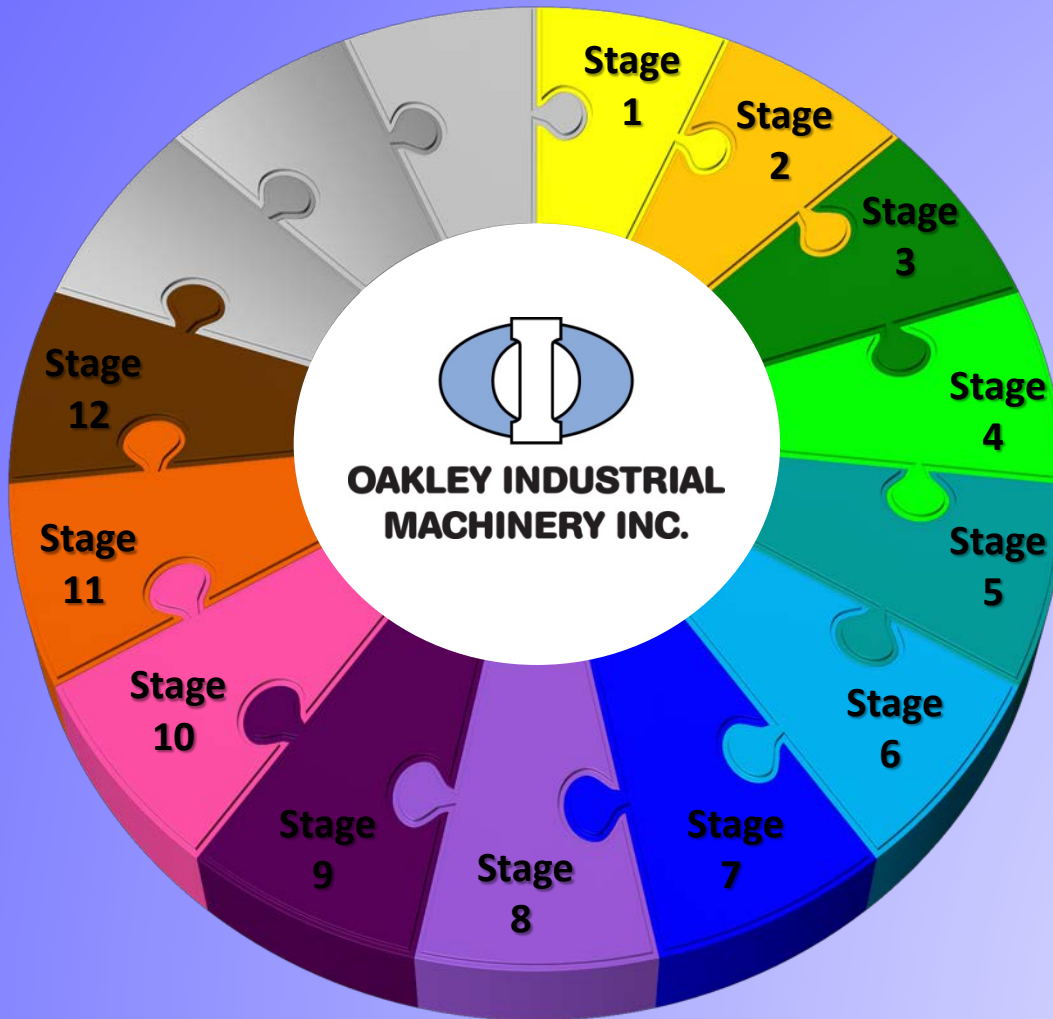
Stage 11: Straightening Elements



Stage 11: Straightening Elements

- **Element Straightening Machinery** is designed to provide straightener elements which facilitates automated processes, and reduces time spent in trying to prepare them for their next step in production.

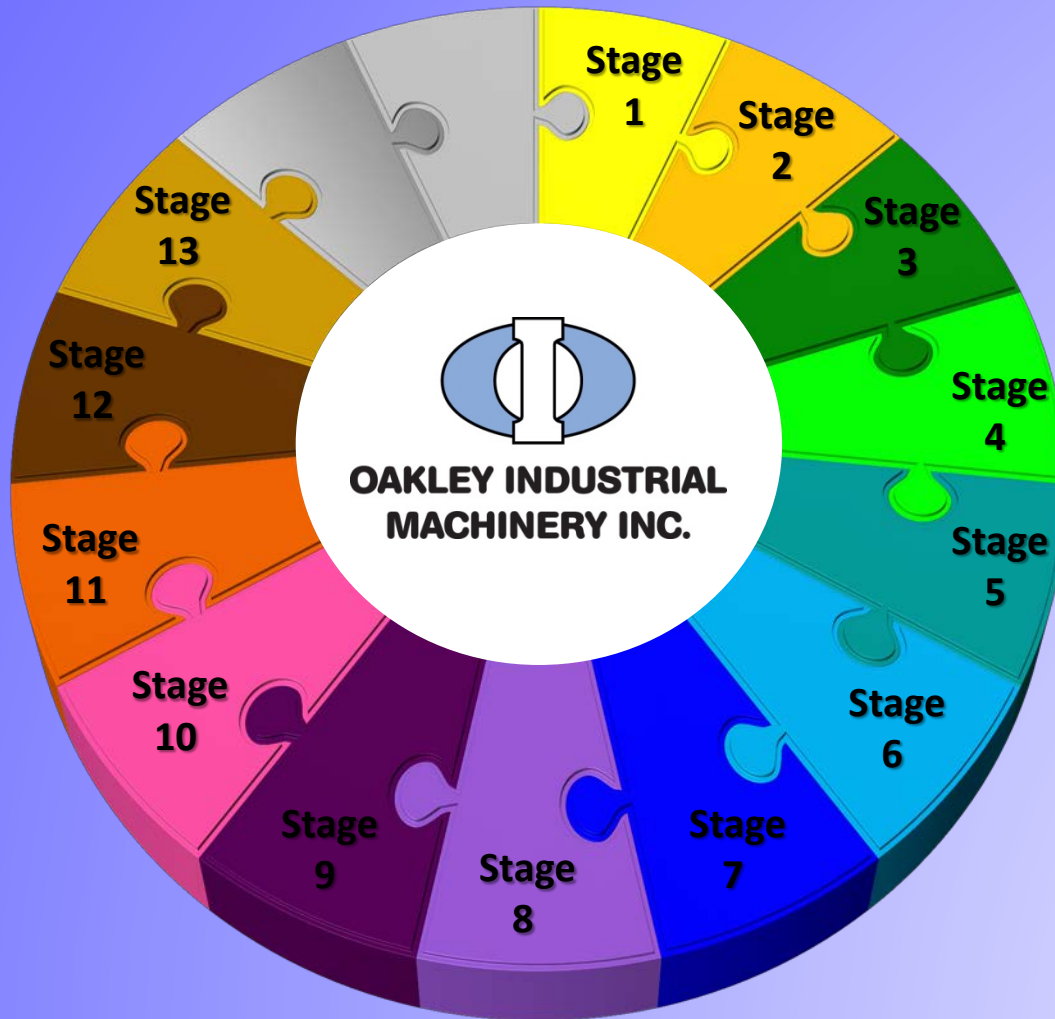
Stage 12: Annealing Elements



Stage 12: Annealing Elements

- **Annealing Element Machinery** is designed to quickly and efficiently anneal either particular sections of elements or their entire length after the elements have been reduced.

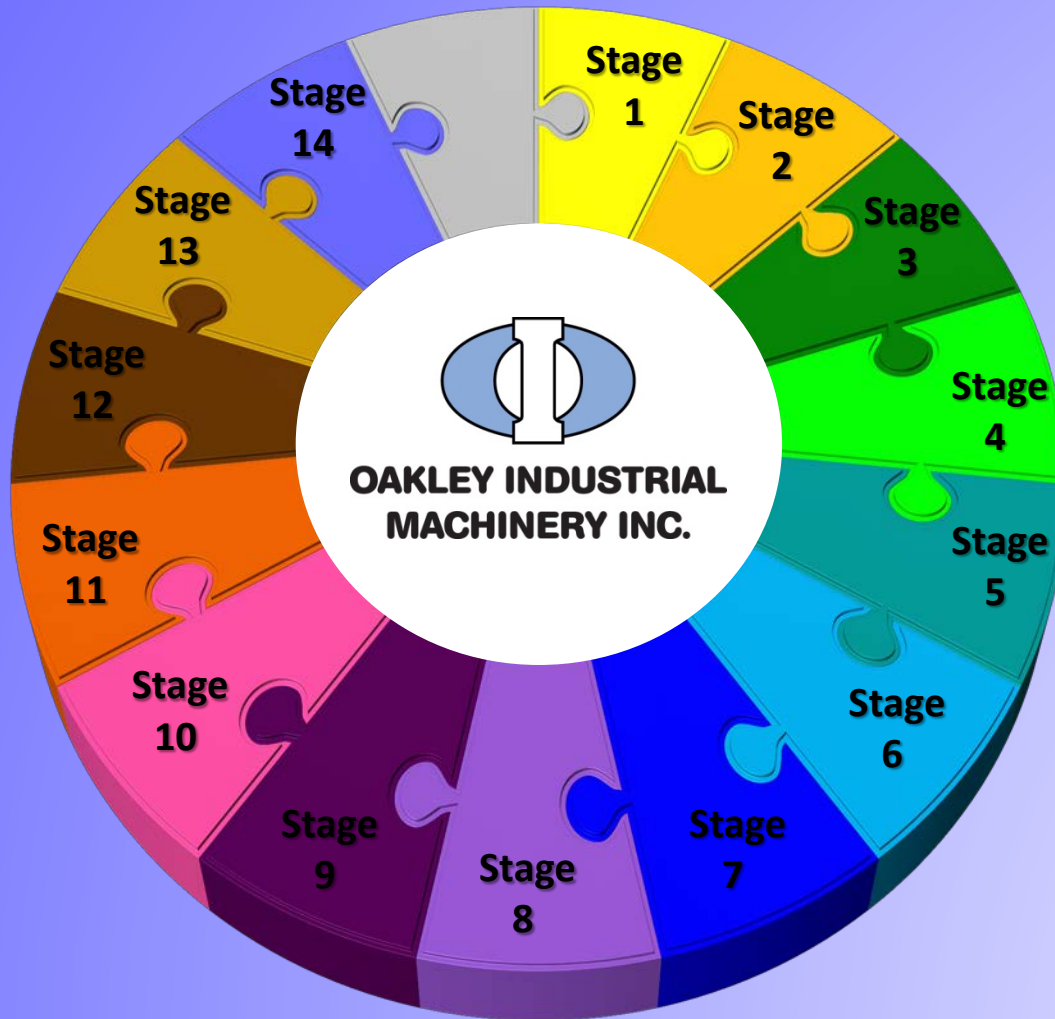
Stage 13: Cropping Elements



Stage 13: Cropping Elements

- **Cropping Machinery** is designed to cut elements to an exact predetermined length. The elements are manually loaded and unloaded. The elements are automatically centered so the same amount will be cut from each end, thus ensuring that the desired pin length inside the elements will be maintained. The elements are then sheared to the desired length and automatically ejected from the machine.

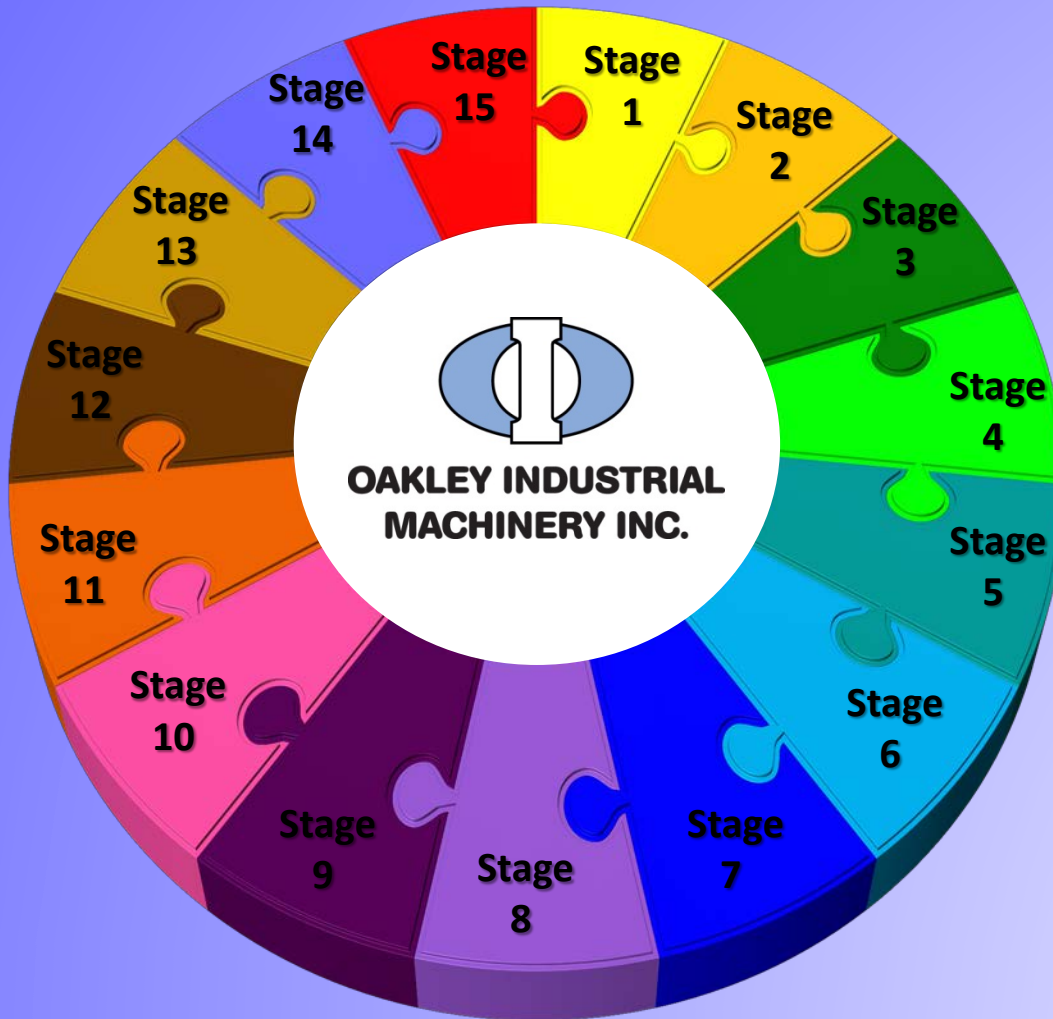
Stage 14: Trimming Elements



Stage 15: Trimming Elements

- **Trim Machinery** is designed either as a hand loaded unit that clamps the elements and strips back the MgO and the tubular sheath to expose the predetermined terminal pin length. It trims one end of the element at a time, or they can trim both ends of the element simultaneously.

Stage 15: Bending Elements



Stage 15: Bending Elements

- **Bending Machinery** is designed to form tubular heating elements into a variety of shapes in a single plane in one continuous operation or in multiple planes in several consecutive operations. A unique feature of this machine is that each element can be measured for length, and any length variation can be programmed to be distributed over any desired area of the formed element.