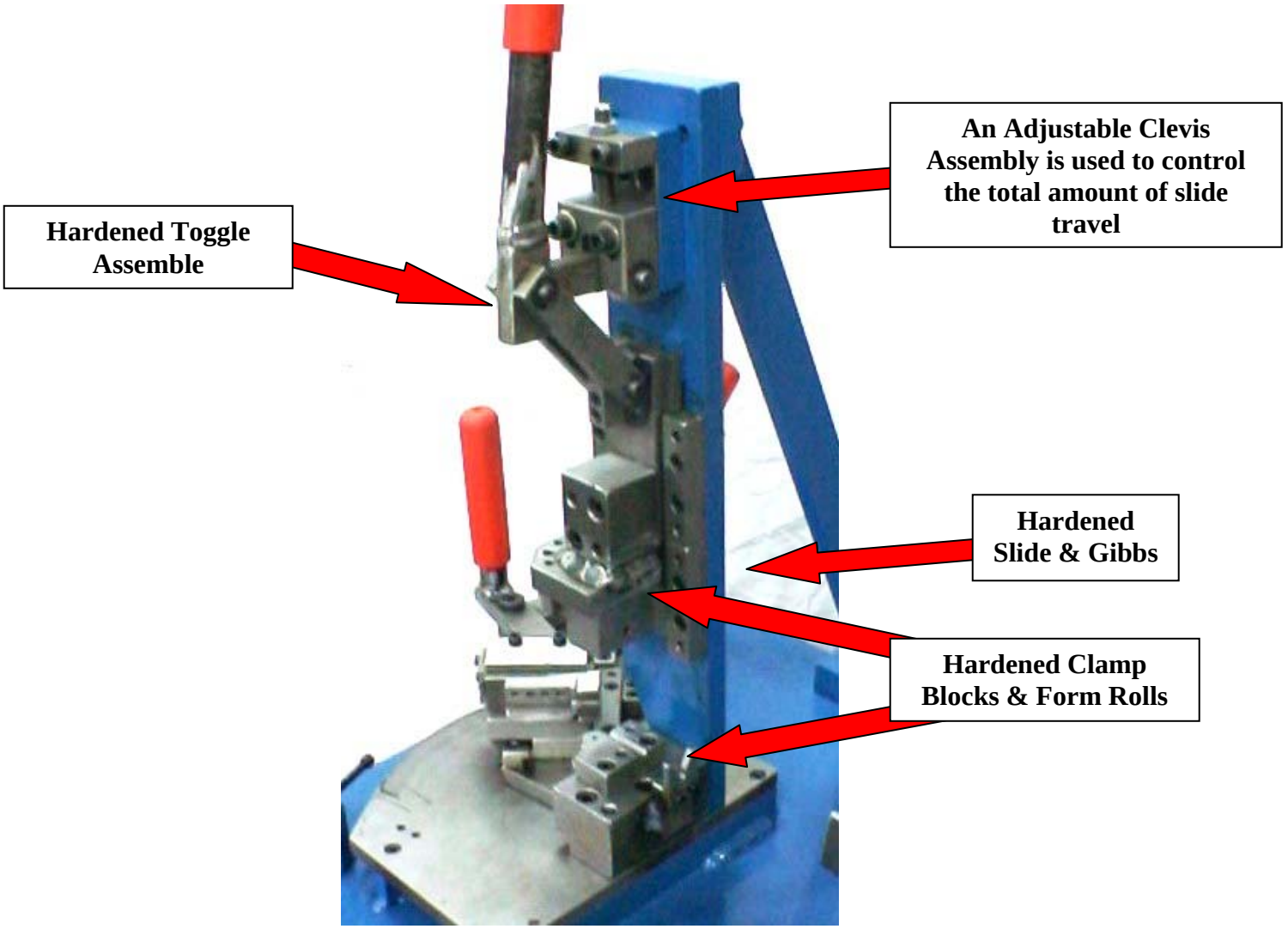
EXCEL
MACHINE & TOOL, INC.
212 Butler Street, Coldwater Ohio 45828
419/678-3222 FAX 419/678-3318
www.tubebenders.com

Manually Operated Bending Fixtures

Excel uses a variety of different tooling units in the manufacture of a manually operated bending fixture. Shown below are examples of some of the different types of units which may be included in a single fixture.

Clamp Units

When a fixture requires a rugged built toggle unit which consistently positions clamps, blocks, and form dies, Excel will typically builds a custom built slide assembly featuring a hardened slide and toggle joint.



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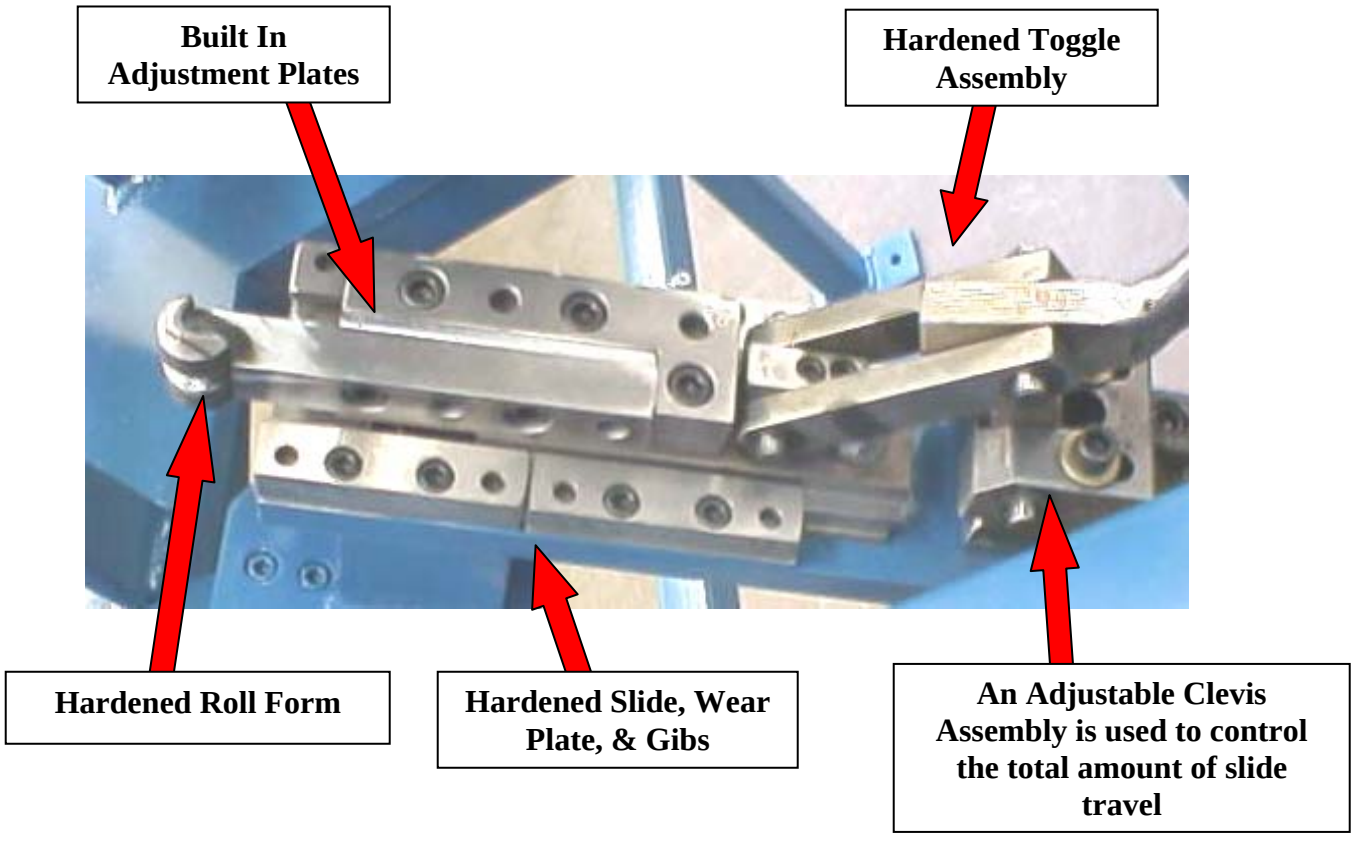
Form Roll Position Unit

When a part design requires a form roll to be retractable to allow the tube to be bent without crashing into a stationary form roll, Excel will incorporate a slide assembly to position a form roll. When the tube is bent, the form roll is held in position with the use of a toggle assembly.



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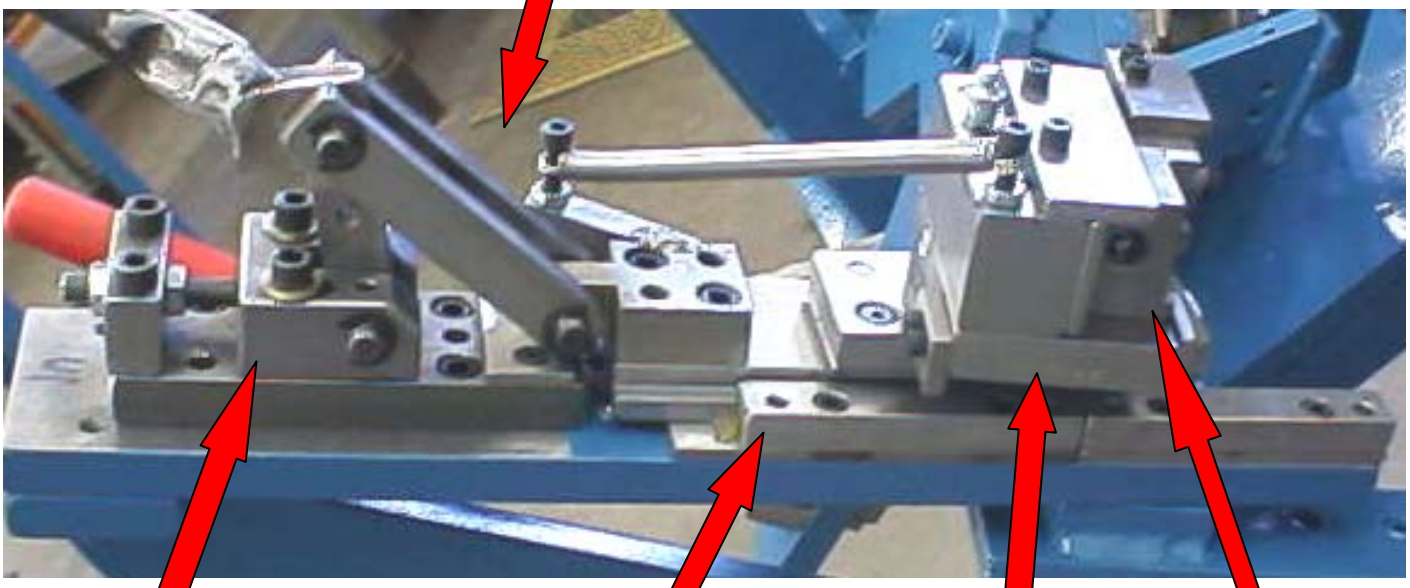
Knuckle Unit with Pivot Style Wiper

When a part design requires a bend wiper to be retractable to allow the tube to be bent without crashing into a stationary bending wiper, Excel will incorporate a slide assembly to extend a bending wiper. Sliding wipers are also incorporated when a part contains features such as beads, brackets, charge ports, switch ports and end fittings.



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Slide Wiper Rotated Around a Form Roll

Excel uses this sub-assembly when a part is bent with a center line radius of less than two times the diameter of the tube and the overall roundness of the bend is critical. The design of this sub-assembly allows a large amount of pressure to be applied to the tube during the bending process. This sub-assembly is well suited for parts that have brackets or end fittings near the end of a tube.