



# Perfection Spring and Stamping Corp.

## Defining What We Do....

### Four-slide Stampings

A four-slide, also known as a multislide, multi-slide, or four-way, is a metalworking machine tool used in the high-volume manufacture of small stamped components from bar or wire stock. The press is most simply described as a horizontal stamping press that uses cams to control tools. The machine is used for progressive or transfer stamping operations.

Many people familiar with Fourslide machines believe that it can do everything a punch press can do...and more. To put it simply, a fourslide machine is a stamping plant in itself. Where a punch press uses a progressive die to blank out metal parts and stampings, a slide machine goes a step further. After the primary “cuts” are made in the metal strip, with the addition of cams, slides, stock straighteners and slides feeding into and around the strip, complex shapes, forms and secondary operations can be completed before the final part is ejected from the machine. Though the tooling is complex, and may seem a bit expensive at first, often the cost savings in piece price by eliminating costly secondary operations can be quickly make up for the high tooling cost.

#### Design

A four-slide is much different that most other presses. The key of the machine is its moving slides that have tools attached, which strike the work piece to form it. These slides are driven by four shafts that outline the machine. The shafts are connected to bevel gears so that one shaft is driven by an electric motor, and then that shaft's motion drives the other three shafts. Each shaft then has cams which drive the slides, usually of a split-type. This shafting arrangement allows the work piece to be worked for four sides, which makes this machine extremely versatile. A hole near the center of the machine is provided to expel the completed work piece.

#### ***Advantages and disadvantages***

The greatest advantage of the four-slide machine is its ability to complete all of the operations required to form the work piece from start to finish. Moreover, it can handle certain parts that transfer or progressive dies cannot, because it can manipulate from four axes. Due to this flexibility it reduces the cost of the finished part because it requires less machines, setups, and handling. Also, because only one machine is required, less space is required for any given work piece. As compared to standard stamping presses the tooling is usually inexpensive, due to the simplicity of the tools. A four-slide can usually produce 20,000 to 70,000 finished parts per 16-hour shift, depending on the number of operations per part; this speed usually results in a lower cost per part.

The biggest disadvantage is its size constraints. The largest machines can handle stock up to 3 in (76 mm) wide, 12.5 in (320 mm) long, and 3/32 in (2.4 mm) thick. For wires the limit is 1/8 in (3.175 mm). Other limits are the travel on the slides, which maxes out at 3/4 in (19.05 mm), and the throw of the forming cams, which is between 7/8 and 2 in (22 and 51 mm). The machine is also limited to only shearing and bending operations. Extrusion and upsetting operations are impractical because it hinders the movement of the work piece to the next station. Drawing and stretching require too much tonnage and the mechanisms required for the operations are space prohibitive. Finally, this machine is only feasible to use on high volume parts because of the long lead time required to setup the tooling.

## **Materials**

The material stock used in four-slides is usually limited by its formability and not the machine capabilities. Usually the forming characteristics and bending radii are the most limiting factors. The most commonly used materials are:

Low-carbon cold rolled steel

Spheroidized cold rolled spring steel

Type 300 and 400 stainless spring steels

Copper alloys

Beryllium-copper alloys

*From Wikipedia.com, the free encyclopedia and CJ Labonack, US Baird Corp..*