84.62 - Machine-tools (including presses) for working metal by forging, hammering or die-stamping; machine-tools (including presses) for working metal by bending, folding, straightening, flattening, shearing, punching or notching; presses for working metal or metal carbides, not specified above (+)**.**

8462.10 - Forging or die-stamping machines (including presses) and hammers

- Bending, folding, straightening or flattening machines (including presses) :

8462.21 - - Numerically controlled

8462.29 - - Other

- Shearing machines (including presses), other than combined punching and shearing machines :

8462.31 - - Numerically controlled

8462.39 - - Other

- Punching or notching machines (including presses), including combined punching and shearing machines :

8462.41 - - Numerically controlled

8462.49 - - Other

- Other :

8462.91 - - Hydraulic presses

8462.99 - - Other

The heading covers certain machine-tools, listed in the heading text, which work by changing the shape or form of metal or metal carbides.

In general machine-tools are power-driven but similar machines, worked by hand or pedal, are also covered by this heading. These latter types can be distinguished from the hand tools of **heading 82.05** and from the tools for working in the hand of **heading 84.67**, by the fact that they are usually designed to be mounted on the floor, on a bench, on a wall or on another machine, and are thus usually provided with a base plate, mounting frame, stand, etc.

The heading includes :

(1) **Forging** and **stamping machines**. Broadly speaking forging includes all processes for working heated metal by impact or by pressure, either to eliminate puddling slag (shingling) or to shape the metal. Except in the case of shingling where the metal is worked in the form of balls, the metal to be shaped is either in the form of semi-finished products such as blooms, billets or sheet bars, or in the form of bars and rods, usually of circular section. Forging can be described more precisely as an operation which uses heat but no dies.

Stamping (or cutting out) is a process for forcing metal, by impact or pressure to fill the hollows of metal moulds called dies. This operation is carried out hot for hard metals (notably steel) or cold for soft metals. Generally a press is used.

In the process of stamping or cutting out, the dies completely enclose the workpiece. In certain cases, however, a single metal die operating on only one part of the unworked piece is used. This die is then called a stamp and the operation is termed stamping.

Stamping machines can eliminate the " flash " produced during stamping or cutting out. This trimming operation is carried out with the aid of special cutting dies. The finishing operation carried out by a precision die-stamper is, in fact, described as sizing. This sizing produces the necessary precise dimensions.

The following are examples of machine-tools specially designed and built for carrying out the operations described above :

- Hammers, drop forges and drop hammers (mechanical, hydraulic or pneumatic hammers and steam hammers) which operate by a series of short, sharp shocks.

- Metal working presses, which operate by continuous pressure. However, general purpose presses not specially designed for metal working are **excluded** (**heading 84.79**).

(2) **Bending machines**. These include machines for working flat products (sheets, plates and strips) which, by passing the products through three or four sets of rollers, give them a cylindrical curve (for this the rollers are parallel as with tube forming machines) or else a conical shape (in which the rollers are not parallel); machines for working non-flat products (bars, rods, angles, shapes, sections, tubes). These machines work either by means of forming rollers, by press bending, or, for tubes (and, in particular, oil pipes), by drawing their ends while the main section is held by a fixed cylinder.

(3) **Folding machines**. These machines include the following :

(a) machines for working flat products. The folding of a flat product consists of giving a sheet (or strip) in a straight line a permanent deformation of small radius, without rupturing the metal. This operation is carried out, either on a universal folding machine, or on a folding press;

(b) machines for working non-flat products. The folding of bars, rods, tubes, angles, shapes and sections is akin to forming (see paragraph (2) above); wire bending involves giving it a curvature within a single plane. Wire bending machines carrying out more complex operations (for example, spring manufacturing machines) do not constitute simple folding machines and fall in **heading 84.63**.

(4) **Straightening machines and flattening machines**. These machines are for remedying imperfections in non-flat products, such as wire, bars, rods, tubes, angles, shapes and sections, or flat products, such as sheets or strip, arising during their manipulation after manufacture.

Flattening machines include the following, for example :

(a) Flattening machines of the roller type which consist of a series of parallel rollers (or cylinders), either small in number (5 to 11) but of relatively large diameter and great rigidity, or large in number (generally 15 to 23) but of small diameter, great flexibility, and supported by an equal number of counter rollers;

(b) Tables for flattening by drawing in which imperfections are eliminated by slight permanent stretching.

(5) **Shearing machines**. The shearing process involves two cutting tools with faces in the same plane applied vertically to the metal to be cut. These tools penetrate the metal which is subjected to plastic deformation and the fibres of which, under progressively more and more pressure and penetration, rupture along the line of the blades.

Machines of this type include : balance shears, lever shears and guillotine shears which use blades; rotary shearing machines which, instead of blades, use tools in the form of discs or frustums of cones.

(6) **Punching machines** used for perforating, notching or cutting metal by means of two tools adjusted one inside the other. The punching tool is called the punch while the other is called the die. Rupture of the metal is effected as in shearing and the shape of the hole obtained depends on the shape of the tools.

The different machines of this type include machines for making gears by punching.

(7) **Notching machines** are small machines used for working various sections (L, T, I or U sections) and half-rounds, either to prepare them for assembly (for example, grooves, slots, tenons and dovetails), or simply to cut or pierce them.

(8) **Extruding presses** for extruding bars, rods, wire, angles, shapes, sections, tubes, etc. These presses are designed to force a mass of metal through an extrusion die with the help of a punch. Depending on the malleability of the metal, this operation is carried out hot or cold.

(9) **Presses for moulding metallic powders** by sintering.

(10) **Presses for compressing metal scrap** into bales.

PARTS AND ACCESSORIES

Subject to the general provisions regarding the classification of parts (see the General Explanatory Note to Section XVI), parts and accessories (**other than** the tools of **Chapter 82**) of the machine-tools of this heading are classified in **heading 84.66**.

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The heading also **excludes** :

(a) Hand tools (**heading 82.05**).

(b) Machining centres, unit construction machines (single station) and multi-station transfer machines, for working metal (**heading 84.57**).

(c) Tools for working in the hand, pneumatic, hydraulic or with self-contained electric or non-electric motor (**heading 84.67**).

(d) Machines for stamping address plates (**heading 84.72**).

(e) Pig iron breakers and special stamping mills for breaking up cast iron scrap (**heading 84.79**).

(f) Machine-tools for bending, folding and straightening semiconductor leads (**heading 84.86**).

(g) `Testing machines and apparatus (**heading 90.24**).

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Subheading Explanatory Note.

Subheadings 8462.21, 8462.31 and 8462.41

See the Explanatory Note to subheadings 8458.11 and 8458.91.