

CHAPTER 84

**Nuclear reactors, boilers, machinery  
and mechanical appliances; parts thereof**

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- 8401 Nuclear reactors; fuel elements (cartridges), non-irradiated, for nuclear reactors; machinery and apparatus for isotopic separation
- 8402 Steam or other vapour generating boilers (other than central heating hot water boilers capable also of producing low pressure steam); super-heated water boilers
- 8403 Central heating boilers other than those of 8402
- 8404 Auxiliary plant for use with boilers of 8402 or 8403 (for example, economisers, super-heaters, soot removers, gas recoverers); condensers for steam or other vapour power units
- 8405 Producer gas or water gas generators, with or without their purifiers; acetylene gas generators and similar water process gas generators, with or without their purifiers
- 8406 Steam turbines and other vapour turbines
- 8407 Spark-ignition reciprocating or rotary internal combustion piston engines
- 8408 Compression-ignition internal combustion piston engines (diesel or semi-diesel engines)
- 8409 Parts suitable for use solely or principally with the engines of 8407 or 8408
- 8410 Hydraulic turbines, water wheels, and regulators therefor
- 8411 Turbo-jets, turbo-propellers and other gas turbines
- 8412 Other engines and motors
- 8413 Pumps for liquids, whether or not fitted with a measuring device; liquid elevators
- 8414 Air or vacuum pumps, air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters
- 8415 Air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, including those machines in which the humidity cannot be separately regulated
- 8416 Furnace burners for liquid fuel, for pulverised solid fuel or for gas; mechanical stokers, including their mechanical grates, mechanical ash dischargers and similar appliances
- 8417 Industrial or laboratory furnaces and ovens, including incinerators, non-electric
- 8418 Refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat pumps other than air conditioning machines of 8415
- 8419 Machinery, plant or laboratory equipment, whether or not electrically heated (excluding furnaces, ovens and other equipment of 8514), for the treatment of materials by a process involving a change of temperature such as heating, cooking, roasting, distilling, rectifying, sterilising, pasteurising, steaming, drying, evaporating, vaporising, condensing or cooling, other than machinery or plant of a kind used for domestic purposes; instantaneous or storage water heaters, non-electric
- 8420 Calendering or other rolling machines, other than for metals or glass, and cylinders therefor
- 8421 Centrifuges, including centrifugal dryers; filtering or purifying machinery and apparatus for liquids or gases

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- 8422 Dish washing machines; machinery for cleaning or drying bottles or other containers; machinery for filling, closing, sealing or labelling bottles, cans, boxes, bags or other containers; machinery for capsuling bottles, jars, tubes and similar containers; other packing or wrapping machinery (including heat-shrink wrapping machinery); machinery for aerating beverages
- 8423 Weighing machinery (excluding balances of a sensitivity of 5 cg or better), including weight operated counting or checking machines; weighing machine weights of all kinds
- 8424 Mechanical appliances (whether or not hand-operated) for projecting, dispersing or spraying liquids or powders; fire extinguishers, whether or not charged; spray guns and similar appliances; steam or sand blasting machines and similar jet projecting machines
- 8425 Pulley tackle and hoists other than skip hoists; winches and capstans; jacks
- 8426 Ships' derricks; cranes, including cable cranes; mobile lifting frames, straddle carriers and works trucks fitted with a crane
- 8427 Fork-lift trucks; other works trucks fitted with lifting or handling equipment
- 8428 Other lifting, handling, loading or unloading machinery (for example, lifts, escalators, conveyors, teleferics)
- 8429 Self-propelled bulldozers, angledozers, graders, levellers, scrapers, mechanical shovels, excavators, shovel loaders, tamping machines and road rollers
- 8430 Other moving, grading, levelling, scraping, excavating, tamping, compacting, extracting or boring machinery, for earth, minerals or ores; pile-drivers and pile-extractors; snow-ploughs and snow-blowers
- 8431 Parts suitable for use solely or principally with the machinery of 8425 to 8430
- 8432 Agricultural, horticultural or forestry machinery for soil preparation or cultivation; lawn or sports-ground rollers
- 8433 Harvesting or threshing machinery, including straw or fodder balers; grass or hay mowers; machines for cleaning, sorting or grading eggs, fruit or other agricultural produce, other than machinery of 8437
- 8434 Milking machines and dairy machinery
- 8435 Presses, crushers and similar machinery used in the manufacture of wine, cider, fruit juices or similar beverages
- 8436 Other agricultural, horticultural, forestry, poultry-keeping or bee-keeping machinery, including germination plant fitted with mechanical or thermal equipment; poultry incubators and brooders
- 8437 Machines for cleaning, sorting or grading seed, grain or dried leguminous vegetables; machinery used in the milling industry or for the working of cereals or dried leguminous vegetables, other than farm-type machinery
- 8438 Machinery, not specified or included elsewhere in this Chapter, for the industrial preparation or manufacture of food or drink, other than machinery for the extraction or preparation of animal or fixed vegetable fats or oils
- 8439 Machinery for making pulp of fibrous cellulosic material or for making or finishing paper or paperboard
- 8440 Book-binding machinery, including book-sewing machines
- 8441 Other machinery for making up paper pulp, paper or paperboard, including cutting machines of all kinds

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- ★ 8442 Machinery, apparatus and equipment (other than the machine-tools of 8456 to 8465) for preparing or making plates, cylinders or other printing components; plates, cylinders and other printing components; plates, cylinders and lithographic stones, prepared for printing purposes (for example, planed, grained or polished)
- ★ 8443 Printing machinery used for printing by means of plates, cylinders and other printing components of 8442; other printers, copying machines and facsimile machines, whether or not combined; parts and accessories thereof
- 8444 Machines for extruding, drawing, texturing or cutting man-made textile materials
- 8445 Machines for preparing textile fibres; spinning, doubling or twisting machines and other machinery for producing textile yarns; textile reeling or winding (including weft-winding) machines and machines for preparing textile yarns for use on the machines of 8446 or 8447
- 8446 Weaving machines (looms)
- 8447 Knitting machines, stitch-bonding machines and machines for making gimped yarn, tulle, lace, embroidery, trimmings, braid or net and machines for tufting
- 8448 Auxiliary machinery for use with machines of 8444.00.00, 8445, 8446 or 8447 (for example, dobbies, Jacquards, automatic stop motions, shuttle changing mechanisms); parts and accessories suitable for use solely or principally with the machines of this heading or of 8444.00.00, 8445, 8446 or 8447 (for example, spindles and spindle flyers, card clothing, combs, extruding nipples, shuttles, healds and heald-frames, hosiery needles)
- 8449 Machinery for the manufacture or finishing of felt or nonwovens in the piece or in shapes, including machinery for making felt hats; blocks for making hats
- 8450 Household or laundry-type washing machines, including machines which both wash and dry
- 8451 Machinery (other than machines of 8450) for washing, cleaning, wringing, drying, ironing, pressing (including fusing presses), bleaching, dyeing, dressing, finishing, coating or impregnating textile yarns, fabrics or made up textile articles and machines for applying the paste to the base fabric or other support used in the manufacture of floor coverings such as linoleum; machines for reeling, unreeling, folding, cutting or pinking textile fabrics
- 8452 Sewing machines, other than book-sewing machines of 8440; furniture, bases and covers specially designed for sewing machines; sewing machine needles
- 8453 Machinery for preparing, tanning or working hides, skins or leather or for making or repairing footwear or other articles of hides, skins or leather, other than sewing machines
- 8454 Converters, ladles, ingot moulds and casting machines, of a kind used in metallurgy or in metal foundries
- 8455 Metal-rolling mills and rolls therefor
- 8456 Machine-tools for working any material by removal of material, by laser or other light or photon beam, ultrasonic, electro-discharge, electro-chemical, electron beam, ionic-beam or plasma arc processes
- 8457 Machining centres, unit construction machines (single station) and multi-station transfer machines, for working metal
- 8458 Lathes (including turning centres) for removing metal
- 8459 Machine-tools (including way-type unit head machines) for drilling, boring, milling, threading or tapping by removing metal, other than lathes (including turning centres) of 8458
- 8460 Machine-tools for deburring, sharpening, grinding, honing, lapping, polishing or otherwise finishing metal or cermets by means of grinding stones, abrasives or polishing products, other than gear cutting, gear grinding or gear finishing machines of 8461
- 8461 Machine-tools for planing, shaping, slotting, broaching, gear cutting, gear grinding or gear finishing, sawing, cutting-off and other machine-tools working by removing metal or cermets, not elsewhere specified or included

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- 8462 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
- 8463 Other machine-tools for working metal or cermets, without removing material
- 8464 Machine-tools for working stone, ceramics, concrete, asbestos-cement or like mineral materials or for cold working glass
- 8465 Machine-tools (including machines for nailing, stapling, glueing or otherwise assembling) for working wood, cork, bone, hard rubber, hard plastics or similar hard materials
- 8466 Parts and accessories suitable for use solely or principally with the machines of 8456 to 8465, including work or tool holders, self-opening dieheads, dividing heads and other special attachments for machine-tools; tool holders for any type of tool for working in the hand
- 8467 Tools for working in the hand, pneumatic, hydraulic or with self-contained electric or non-electric motor
- 8468 Machinery and apparatus for soldering, brazing or welding, whether or not capable of cutting, other than those of 8515; gas-operated surface tempering machines and appliances
- ★ 8469 Typewriters other than printers of 8443; word-processing machines
- 8470 Calculating machines and pocket-size data recording, reproducing and displaying machines with calculating functions; accounting machines, postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device; cash registers
- 8471 Automatic data processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included
- 8472 Other office machines (for example, hectograph or stencil duplicating machines, addressing machines, automatic banknote dispensers, coin-sorting machines, coin-counting or wrapping machines, pencil-sharpening machines, perforating or stapling machines)
- 8473 Parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with the machines of 8469 to 8472
- 8474 Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid (including powder or paste) form; machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand
- 8475 Machines for assembling electric or electronic lamps, tubes or valves or flash-bulbs, in glass envelopes; machines for manufacturing or hot working glass or glassware
- 8476 Automatic goods-vending machines (for example, postage stamp, cigarette, food or beverage machines), including money-changing machines
- 8477 Machinery for working rubber or plastics or for the manufacture of products from these materials, not specified or included elsewhere in this Chapter
- 8478 Machinery for preparing or making up tobacco, not specified or included elsewhere in this Chapter
- 8479 Machines and mechanical appliances having individual functions, not specified or included elsewhere in this Chapter
- 8480 Moulding boxes for metal foundry; mould bases; moulding patterns; moulds for metal (other than ingot moulds), metal carbides, glass, mineral materials, rubber or plastics
- 8481 Taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, including pressure-reducing valves and thermostatically controlled valves
- 8482 Ball or roller bearings

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**Section 16  
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- 8483 Transmission shafts (including cam shafts and crank shafts) and cranks; bearing housings and plain shaft bearings; gears and gearing; ball or roller screws; gear boxes and other speed changers, including torque converters; flywheels and pulleys, including pulley blocks; clutches and shaft couplings (including universal joints)
- 8484 Gaskets and similar joints of metal sheeting combined with other material or of two or more layers of metal; sets or assortments of gaskets and similar joints, dissimilar in composition, put up in pouches, envelopes or similar packings; mechanical seals
- ★ 8485 No heading
- ★ 8486 Machines and apparatus of a kind used solely or principally for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays; machines and apparatus specified in note 9(c) to this chapter; parts and accessories
- ★ 8487 Machinery parts, not containing electrical connectors, insulators, coils, contacts or other electrical features, not specified or included elsewhere in this Chapter
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**Notes.**

1.- This Chapter does not cover:

- (a) Millstones, grindstones or other articles of Chapter 68;
- (b) Machinery or appliances (for example, pumps) of ceramic material and ceramic parts of machinery or appliances of any material (Chapter 69);
- (c) Laboratory glassware (7017); machinery, appliances or other articles for technical uses or parts thereof, of glass (7019 or 7020);
- (d) Articles of 7321 or 7322 or similar articles of other base metals (Chapters 74 to 76 or 78 to 81);
- ★ (e) Vacuum cleaners of 8508;
- ★ (f) Electro-mechanical domestic appliances of 8509; digital cameras of 8525; or
- ★ (g) Hand-operated mechanical floor sweepers, not motorised (9603).

- ★ 2.- Subject to the operation of Note 3 to Section XVI and subject to Note 9 to this Chapter, a machine or appliance which answers to a description in one or more of 8401 to 8424, or 8486 and at the same time to a description in one or other of 8425 to 8480 is to be classified under the appropriate heading of the former group or under 8486, as the case may be, and not the latter group.

8419 does not, however, cover:

- (a) Germination plant, incubators or brooders (8436);
- (b) Grain dampening machines (8437);
- (c) Diffusing apparatus for sugar juice extraction (8438);
- (d) Machinery for the heat-treatment of textile yarns, fabrics or made up textile articles (8451); or
- (e) Machinery or plant, designed for a mechanical operation, in which a change of temperature, even if necessary, is subsidiary.

8422 does not cover:

- (a) Sewing machines for closing bags or similar containers (8452); or
- (b) Office machinery of 8472.

8424 does not cover:

- ★ Ink-jet printing machines (8443).

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- 3.- A machine-tool for working any material which answers to a description in 8456 and at the same time to a description in 8457, 8458, 8459, 8460, 8461, 8464 or 8465 is to be classified in 8456.
- 4.- 8457 applies only to machine-tools for working metal, other than lathes (including turning centres), which can carry out different types of machining operations either:
- (a) by automatic tool change from a magazine or the like in conformity with a machining programme (machining centres),
  - (b) by the automatic use, simultaneously or sequentially, of different unit heads working on a fixed position workpiece (unit construction machines, single station), or
  - (c) by the automatic transfer of the workpiece to different unit heads (multi-station transfer machines).

- ★ 5.- (A) For the purposes of 8471, "automatic data processing machines" means machines capable of:
- (i) Storing the processing program or programs and at least the data immediately necessary for the execution of the program;
  - (ii) Being freely programmed in accordance with the requirements of the user;
  - (iii) Performing arithmetical computations specified by the user; and
  - (iv) Executing, without human intervention, a processing program which requires them to modify their execution, by logical decision during the processing run.
- ★ (B) Automatic data processing machines may be in the form of systems consisting of a variable number of separate units.
- ★ (C) Subject to paragraphs (D) and (E) below, a unit is to be regarded as being part of an automatic data processing system if it meets all of the following conditions:
- (i) It is of a kind solely or principally used in an automatic data processing system;
  - (ii) It is connectable to the central processing unit either directly or through one or more other units; and
  - (iii) It is able to accept or deliver data in a form (codes or signals) which can be used by the system.

Separately presented units of an automatic data processing machine are to be classified in 8471.

However, keyboards, X-Y co-ordinate input devices and disk storage units which satisfy the conditions of paragraphs (C)(ii) and (C)(iii) above, are in all cases to be classified as units of 8471.

- ★ (D) 8471 does not cover the following when presented separately, even if they meet all of the conditions set forth in Note 5(C) above:
- (i) Printers, copying machines, facsimile machines, whether or not combined;
  - (ii) Apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network);
  - (iii) Loud speakers and microphones;
  - (iv) Television cameras, digital cameras and video camera recorders;
  - (v) Monitors and projectors, not incorporating television reception apparatus.
- ★ (E) Machines incorporating or working in conjunction with an automatic data processing machine and performing a specific function other than data processing are to be classified in the headings appropriate to their respective functions or, failing that, in residual headings.

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6.- 8482 applies, *inter alia*, to polished steel balls, the maximum and minimum diameters of which do not differ from the nominal diameter by more than 1% or by more than 0.05 mm, whichever is less. Other steel balls are to be classified in 7326.

7.- A machine which is used for more than one purpose is, for the purposes of classification, to be treated as if its principal purpose were its sole purpose.

Subject to Note 2 to this Chapter and Note 3 to Section XVI, a machine the principal purpose of which is not described in any heading or for which no one purpose is the principal purpose is, unless the context otherwise requires, to be classified in 8479. 8479 also covers machines for making rope or cable (for example, stranding, twisting or cabling machines) from metal wire, textile yarn or any other material or from a combination of such materials.

8.- For the purposes of 8470, "pocket-size" applies only to machines the dimensions of which do not exceed 170 mm x 100 mm x 45 mm.

- ★ 9.- (A) Notes 8(a) and (b) to Chapter 85 also apply with respect to "semiconductor devices" and "electronic integrated circuits", respectively, as used in this Note and in 8486. However, for the purposes of this Note and of 8486, "semiconductor devices" also covers photosensitive semiconductor devices and light emitting diodes.
- ★ (B) For the purposes of this Note and of 8486, "manufacture of flat panel displays" covers the fabrication of substrates into a flat panel. It does not cover the manufacture of glass or the assembly of printed circuit boards or other electronic components onto the flat panel. "Flat panel display" does not cover cathode-ray tube technology.
- ★ (C) 8486 also includes machines and apparatus solely or principally of a kind used for:
  - (i) the manufacture or repair of masks and reticles;
  - (ii) assembling semiconductor devices or electronic integrated circuits; and
  - (iii) lifting, handling, loading or unloading of boules, wafers, semiconductor devices, electronic integrated circuits and flat panel displays.
- ★ (D) Subject to Note 1 to Section XVI and Note 1 to Chapter 84, machines and apparatus answering to the description in 8486 are to be classified in that heading and in no other heading of this Schedule.

**Subheading Notes.**

1.- For the purposes of 8471.49.00, "systems" means automatic data processing machines whose units satisfy the conditions laid down in Note 5(B) to Chapter 84 and which comprise at least a central processing unit, one input unit (for example, a keyboard or a scanner), and one output unit (for example, a visual display unit or a printer).

2.- 8482.40 applies only to bearings with cylindrical rollers of a uniform diameter not exceeding 5 mm and having a length which is at least three times the diameter. The ends of the rollers may be rounded.

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**Section 16  
Chapter 84/8**

**Additional Notes.**

- 1.- In this Chapter, the power of an internal combustion piston engine shall be taken to be the net output, expressed in kilowatts, that the engine is capable of delivering continuously at a stated crankshaft speed under standard operating conditions.
- 2.- For the purposes of this Chapter, "operating weight" means the combined weight of the machine, the driver and a tank full of fuel.
- 3.- 8422 does not cover machines which collate and load, or merely load or unload, packs or units of goods (in one or more tiers or layers) onto pallets, slipsheets or the like (8428).