90.18 - Instruments and appliances used in medical, surgical, dental or veterinary sciences, including scintigraphic apparatus, other electro-medical apparatus and sight-testing instruments (+)**.**

- Electro-diagnostic apparatus (including apparatus for functional exploratory examination or for checking physiological parameters) :

9018.11 - - Electro-cardiographs

9018.12 - - Ultrasonic scanning apparatus

9018.13 - - Magnetic resonance imaging apparatus

9018.14 - - Scintigraphic apparatus

9018.19 - - Other

9018.20 - Ultra-violet or infra-red ray apparatus

- Syringes, needles, catheters, cannulae and the like :

9018.31 - - Syringes, with or without needles

9018.32 - - Tubular metal needles and needles for sutures

9018.39 - - Other

- Other instruments and appliances, used in dental sciences :

9018.41 - - Dental drill engines, whether or not combined on a single base with other dental equipment

9018.49 - - Other

9018.50 - Other ophthalmic instruments and appliances

9018.90 - Other instruments and appliances

This heading covers a very wide range of instruments and appliances which, in the vast majority of cases, are used only in professional practice (e.g., by doctors, surgeons, dentists, veterinary surgeons, midwives), either to make a diagnosis, to prevent or treat an illness or to operate, etc. Instruments and appliances for anatomical or autoptic work, dissection, etc., are also included, as are, under certain conditions, instruments and appliances for dental laboratories (see Part (II) below). The instruments of the heading may be made of any material (including precious metals).

The heading **does not cover** :

(a) Sterile catgut and other sterile material for surgical sutures, sterile laminaria and sterile laminaria tents (**heading 30.06**).

(b) Diagnostic or laboratory reagents of **heading 38.22**.

(c) Hygienic or pharmaceutical articles of **heading 40.14**.

(d) Laboratory, pharmaceutical or hygienic glassware of **heading 70.17**.

(e) Sanitary ware of base metal (in particular, **headings 73.24**, **74.18** and **76.15**).

(f) Manicure or pedicure sets and instruments (**heading 82.14**).

(g) Carriages for disabled persons (**heading 87.13**).

(h) Spectacles, goggles and the like, corrective, protective or other (**heading 90.04**).

(ij) Photographic cameras (**heading 90.06**) **unless** incorporated permanently in the instruments or appliances of this heading.

(k) Microscopes, etc., of **heading90.11** or **90.12**.

(l) Disc calculators used for calculating lung function, body mass index, etc., of **heading 90.17**.

(m) Mechano-therapy, oxygen therapy, ozone therapy, artificial respiration, aerosol therapy, massage apparatus, etc., of **heading 90.19**.

(n) Orthopaedic appliances, artificial parts of the body and fracture appliances, including those for animals (**heading 90.21**).

(o) X-ray apparatus, etc., (whether medical or not) of **heading 90.22**.

(p) Clinical thermometers (**heading 90.25**).

(q) Instruments and appliances used in laboratories to test blood, tissue fluids, urine, etc., whether or not such tests serve in diagnosis (generally **heading 90.27**).

(r) Medical or surgical furniture, including that for veterinary use (operating tables, examination tables, hospital beds), dentists' chairs not incorporating dental appliances of this heading, etc. (**heading 94.02**).

On the other hand, this heading includes specialised measuring instruments used exclusively in professional practice, such as cephalometers, dividers for measuring cerebral lesions, obstetrical pelvimeters, etc.

It should also be noted that a number of the instruments used in medicine or surgery (human or veterinary) are, in effect, tools (e.g., hammers, mallets, saws, chisels, gouges, forceps, pliers, spatulae, etc.), or articles of cutlery (scissors, knives, shears, etc.). Such articles are classified in this heading **only** when they are clearly identifiable as being for medical or surgical use by reason of their special shape, the ease with which they are dismantled for sterilisation, their better quality manufacture, the nature of the constituent metals or by their get-up (frequently packed in cases or boxes containing a set of instruments for a particular treatment : childbirth, autopsies, gynaecology, eye or ear surgery, veterinary cases for parturition, etc.).

The instruments and appliances classified here may be equipped with optical devices; they may also make use of electricity, either as motive power or for transmission, or as a preventive, curative or diagnostic agent.

This heading also covers instruments and appliances operated by laser or other light or photon beam processes and ultrasonic instruments and appliances.

(I) INSTRUMENTS AND APPLIANCES FOR HUMAN MEDICINE OR SURGERY

This group includes :

(A) **Instruments which may be used under the same names for several purposes**, for example :

(1) **Needles** (for sutures, ligatures, vaccination, blood tests, hypodermic needles, etc.).

(2) **Lancets** (for vaccination, blood-letting, etc.).

(3) **Trocars** (for puncturing) (gall-bladder, general purpose, etc., types).

(4) **Surgical knives and scalpels** of all kinds.

(5) **Sounds** (prostatic, bladder, urethral, etc.).

(6) **Specula** (nasal, mouth, laryngeal, rectal, vaginal, etc.).

(7) **Mirrors and reflectors** (for examination of eye, larynx, ear, etc.).

(8) **Scissors, shears, forceps, pliers, chisels, gouges, mallets, hammers, saws, scrapers, spatulae**.

(9) **Cannulae, catheters, suction tubes**, etc.

(10) **Cauteries** (thermo, galvano, micro, etc.).

(11) **Tweezers; dressing, swab, sponge or needle holders (including radium needle holders)**.

(12) **Retractors** (lip, jaw, abdominal, tonsil, liver, etc.).

(13) **Dilators** (laryngeal, urethral, oesophageal, uterine, etc.).

(14) **Wire guides** used for the placement of catheters, needles, tissue dilators, endoscopes and atherectomy devices.

(15) **Clips** (suture, etc.).

(16) **Syringes** (glass, metal, glass and metal, plastics, etc.), of all kinds, e.g., injection, puncture, anaesthesia, irrigation, wound washing, suction (with or without pump), eye, ear, throat, uterine, gynaecological, etc.

(17) **Surgical staplers** for inserting staples to close a wound.

(B) **Special diagnostic instruments and apparatus**.

These include :

(1) **Stethoscopes**.

(2) **Instruments to measure rate of breathing** (to determine basal metabolism).

(3) **Sphygmomanometers, tensiometers and oscillometers** (to measure blood pressure).

(4) **Spirometers** (to assess lung capacity).

(5) **Cephalometers**.

(6) **Pelvimeters**.

(C) **Ophthalmic instruments**. These fall into various categories :

(1) **Surgical instruments** such as corneal trephines, keratomes.

(2) **Diagnostic instruments** such as ophthalmoscopes; binocular loupes with head-bands and **binocular-type microscopes**, consisting of a microscope, an electric lamp with a slit, and a head-rest, the whole being mounted on an adjustable support, for the examination of the eyes; tonometers (for testing the intra-ocular tension); eye specula.

(3) **Orthoptic or sight-testing apparatus** including amblyoscopes, retinoscopes, skiascopes, strabometers, keratometers, keratoscopes, eye measurement meters designed to measure the distance between the pupils , trial-cases (of lenses) and trial-frames (for carrying the trial lenses), optometric scales, test charts. However, optometric scales and charts on paper, paperboard or plastics, used for colour perception tests, are **excluded** (**Chapter 49**).

This heading also covers electrically heated compresses for the eyes, and electro-magnets designed for removing metallic particles from the eyes.

(D) **Ear instruments**, e.g., auriscopes. However, tuning forks, whether or not for medical use, are **excluded** (**heading 92.09**).

(E) **Anaesthetic apparatus and instruments** (face masks, face-piece harness, intratracheal tubes, etc.).

(F) **Instruments for nose, throat or tonsil treatment** : clamps (for straightening the nasal cartilage); transillumination apparatus (for sinuses and nasal fossae); tonsilotomes and guillotines; direct laryngoscopes; laryngeal brushes, etc.

(G) **Pharyngeal, oesophageal, stomach or tracheotomy instruments** : oesophagoscopes, bronchoscopes, stomach pumps, intubation tubes, etc.

(H) **Urinary canal or bladder instruments** : urethrotomes, lithotrity instruments, bladder-grit suction apparatus, instruments for prostatectomy.

(IJ) **Artificial kidney (dialysis) apparatus**.

(K) **Gynaecological or obstetrical instruments** : vaginal retractors; hysterectomy instruments; obstetrical stethoscopes; specialised optical instruments for examination of the genital organs; forceps; perforators; embryotomy instruments (for dissection of the foetus); cephalotribes and cranioclasts (instruments to crush the head of a child which has died in the uterus); instruments for taking internal measurements; etc.

(L) **Portable pneumo-thorax apparatus, blood transfusion apparatus, artificial leeches**.

The heading also covers sterile hermetically sealed containers of plastics, from which air has been evacuated but containing a small quantity of anti-coagulant and fitted with an integral donor tube and a phlebotomy needle, used for the collection, storage and transfusion of human whole blood. However, special blood storage bottles of glass are **excluded** (**heading 70.10**).

(M) **Chiropodists' electric grinders**.

(N) **Acupuncture needles** - gold, silver, steel.

(O) **Endoscopes** : gastroscopes, thoracoscopes, peritoneoscopes, bronchoscopic telescopes, cystoscopes, urethroscopes, resectoscopes, cardioscopes, colonoscopes, nephroscopes, laryngoscopes, etc. Many of these have an operating channel large enough to perform surgery via remotely controlled instruments. However, endoscopes for non-medical purposes (fibrescopes) are **excluded** (**heading 90.13**).

(P) **Apparatus incorporating an automatic data processing machine** and designed solely for calculating the dose and distribution of therapeutic radiation.

(Q) **Hyperbaric chambers** (also known as decompression chambers) which are specially equipped pressure vessels to administer oxygen at elevated atmospheric pressure levels. They are used for the treatment of conditions such as decompression sickness, air embolism, gas gangrene, carbon monoxide poisoning, refractory osteomyelitis, skin grafts and flaps, actinomycosis and exceptional blood loss anaemia.

(R) **Lamps** which are specially designed for diagnostic, probing, irradiation, etc. purposes. Torches, such as those in the shape of a pen are **excluded** (**heading 85.13**) as are other lamps which are not clearly identifiable as being for medical or surgical use (**heading 94.05**).

(II) DENTAL INSTRUMENTS AND APPLIANCES

In addition to those common to this and the previous group (such as masks and other dental analgesic apparatus), the main instruments and appliances included in this category are :

(1) **Surgeons' finger-guards** (whether or not articulated) **and gags; cheek or lip retractors, tongue depressors and clips**.

(2) **Forceps** of all kinds, **elevators, tweezers** of all kinds (to remove exposed teeth, aligning pivot teeth, etc.), **cutters** (for dissecting, dressing, filling and gouging, etc.), **root forceps**.

(3) **Instruments for endodontic treatment** (broaches, reamers, files, pluggers, spreaders, etc.).

(4) **Bone scissors and files; gouges and mallets for resecting the jaw and the maxillary sinus; raspatories; scalpels; special knives and scissors; special dentists' tweezers; " excavators " and probes**.

(5) **Special instruments for cleaning gums and sockets; scalers for treating dental tartar; scrapers and enamel chisels**.

(6) **Miscellaneous probes; needles** (abscess, hypodermic, suture, cotton-wool, etc.); **cotton-wool holders and swab holders; insufflators; dental mirrors**.

(7) **Gold-filling instruments** (pluggers, mallets, etc.); **filling instruments** (cement or resin spatulae, amalgam stoppers and mallets, amalgam-carriers, etc.); **impression compound trays**.

(8) **Dental burrs, discs, drills and brushes**, specially designed for use with a dental drill engine or handpiece.

The heading also covers tools and instruments of a kind used in prosthetic dentistry either by the practitioner himself or by a dental technician, for example : knives; spatulae and other modelling tools; miscellaneous pliers and tweezers (for fixing clamps and crowns, cutting pivots, etc.); saws; shears; mallets; files; chisels; scrapers; burnishers; metal formers, for the manufacture, by beating, of metal dental crowns. The heading also covers dental casting machines, dental milling machines, and dental trimmers for trimming models of dentures. The heading **does not**, however, **include** tools or other articles of general use (furnaces, moulds, soldering tools, melting ladles, etc.); these are classified in their respective headings.

The following also fall in this heading :

(i) **Dental drill engines** with swivel arm, whether on a separate base, for wall-mounting, or for fitting to the equipment described under (ii) below.

(ii) **Complete dental equipment on its base** (stationary or mobile unit). The main usual features are a frame carrying a compressor, a transformer, a control panel and other electrical apparatus; the following are also often mounted on the unit : swivel arm drill, spittoon and mouth rinser, electric heater, hot air insufflator, spray, cautery instrument tray, diffused lighting, shadowless lamp, fan, diathermic apparatus, X-ray apparatus, etc.

Some types of this equipment are designed to operate by the use of abrasive materials (usually aluminium oxide) instead of with a drill; the abrasives are usually projected against the teeth by compressed gas (e.g., carbon dioxide).

(iii) **Spittoon mouth rinsers** whether on a base, stand or on swivel arms. They are usually combined with warm water supply and warm water syringe.

(iv) **Polymerisation devices** (light or heat), amalgamators, ultrasonic scalers, electrosurgery equipment, etc.

(v) **Devices for dental treatment** which operate by the use of lasers.

(vi) **Dentists' chairs incorporating dental equipment** or any other dental appliances classifiable in this heading.

The heading **does not**, however, **include** dentists' chairs not incorporating dental appliances of this heading; these dentists' chairs fall in **heading 94.02** whether or not fitted with equipment such as lighting fittings.

It should, however, be noted that the heading **excludes** certain items of dental equipment mentioned in paragraph (ii) above, when they are presented separately; these are classified in their own respective headings, for example, compressors (**heading 84.14**), X-ray, etc., apparatus (**heading 90.22**). **heading 90.22** also covers X-ray, etc., apparatus designed for a separate stand, or for wall-mounting in dental surgeries. Separately presented diathermy apparatus is, however, classified with the electro-medical apparatus of this heading (see Part (IV) below).

It should be noted that dental cements and other dental fillings fall in **heading 30.06**; the preparations known as " dental wax " or as " dental impression compounds ", put up in sets, in packings for retail sale or in plates, horseshoe shapes, sticks or similar forms, and other preparations for use in dentistry, with a basis of plaster (of calcined gypsum or calcium sulphate), fall in **heading 34.07**.

(III) VETERINARY INSTRUMENTS AND APPLIANCES

This group includes a number of articles which, though designed for veterinary use, are similar to those of Part (I) or (II) above, for example :

(A) **General purpose instruments** (e.g., needles, lancets, trocars, scalpels, specula, sounds, scissors, forceps, hammers, curettes, retractors, syringes).

(B) **Special instruments and appliances**, such as, ophthalmoscopes, eye specula, laryngoscopes, stethoscopes, forceps, embryotomes.

(C) **Dental instruments**.

The group also includes instruments and apparatus specialised for veterinary use, for example :

(1) **Instruments and appliances for the udder**, e.g., teat dilators and puncturing sounds (to open the teats of cows); appliances for treating puerperal or milk fever in cows.

(2) **Instruments and appliances for castration** : emasculators; castrating clams and clamps (for producing atrophy of the male genital glands); castrating vices and forceps; ovariotomes, etc.

(3) **Instruments and appliances for parturition** : specialised obstetrical cords, straps, head-collars, forceps and hooks, mechanical calfing aids, etc.

(4) **Miscellaneous instruments** : artificial inseminators; tail-dockers; horn-cutters; sprays for treatment of diseases of respiratory, digestive, urinary, genital, etc., organs in animals; special control apparatus, i.e., for preventing animals from moving during operations (mouth-gags, hobbles, etc.); special syringes for applying medicaments and syringes to be filled with an anaesthetic or a medicament (antiserum, vaccine, etc.) for remote projection at free-roaming animals, for example by means of a gun or pistol operated by compressed gas; appliances for administering pills; special snaffles for ingesting drenches; hooks for sand-crack (to close cracks in hooves); endoscopic instruments for determining the sex of chicks, etc.

The heading **excludes** trichinoscopes (optical instruments for examination of pork) (**heading 90.11**), orthopaedic appliances for animals (**heading 90.21**), operating tables for animals (**heading 94.02**, see corresponding Explanatory Note).

Tools of a type used equally by veterinary surgeons and blacksmiths are classified in **Chapter 82** (e.g., toeing files; nail or hoof clippers; paring knives; pliers; pincers; hammers, etc.); **Chapter 82** also covers cattle-branding tools (punches, irons for burning off hoof-rind, etc.) and shearing tools.

(IV) SCINTIGRAPHIC APPARATUS

These are apparatus which scan parts of the body and create images of an organ or a record of its functioning. It includes apparatus incorporating a scintillation counter the data from which is converted into analogue signals for the purpose of making medical diagnoses (e.g., gamma camera, scintillation scanner).

(V) OTHER ELECTRO-MEDICAL APPARATUS

This heading also covers electro-medical apparatus for preventive, curative or diagnostic purposes, **other than** X-ray, etc., apparatus of **heading 90.22**. This group includes :

(1) **Electro-diagnostic apparatus**, which include :

(i) **Electro-cardiographs** (apparatus which, by means of currents produced by contractions of the cardiac muscle, record heart movements as electrocardiograms).

(ii) **Phonocardiographs** (specially designed to register heart noises as phonocardiograms; they may also be used as electro-cardiographs).

(iii) **Cardioscopes** (used in conjunction with the two preceding instruments to enable simultaneous observation of cardiograms and phonocardiograms).

(iv) **Rheocardiographs** (electrical apparatus for measuring changes of electrical resistance due to the functioning of the heart).

(v) **Electroencephalographs** (for examination of the brain).

(vi) **Electrosphygmographs** (for registering arterial pressure and volume).

(vii) **Electrotonographs** (for registering variations in arterial, intravenous or intracardial pressure).

(viii) **Electroretinographs** (for measuring strain in the retina).

(ix) **Audiometers and similar apparatus** (for hearing tests based on frequency variations).

(x) **Diagnostic apparatus incorporating or operating in conjunction with an automatic data processing machine** for processing and visualising clinical data, etc.

(xi) **Ultrasonic diagnostic equipment** used for the representation of organs, e.g., on a display tube, by means of ultrasonic waves.

(xii) **Nuclear Magnetic Resonance (NMR) apparatus** used to represent the characteristics of tissues and organs inside the human body, using the magnetic properties of body atoms, such as hydrogen atoms.

(2) **Electrotherapy apparatus**. Apart from its use in diagnosis, this apparatus is employed to treat diseases such as neuritis, neuralgia, hemiplegia, phlebitis, endocrinal anaemia. Certain of these appliances can be combined with electro-surgical instruments referred to in paragraph (7) below.

(3) **Iono-therapy apparatus** used to administer active medicaments (sodium or lithium salicylate, potassium iodide, histamine, etc.) through the skin by the aid of an electric current.

(4) **Diathermy apparatus** to treat certain diseases which require heat (e.g., rheumatism, neuralgia, dental ailments). These operate by the use of high-frequency (shortwave, ultrasonic, ultra shortwave, etc.) currents, and employ electrodes in a variety of forms (e.g., plates, rings, tubes).

(5) **Electric shock treatment apparatus** to treat mental or nervous diseases.

(6) **Cardiac defibrillators** for defibrillating the heart by the application of electric current.

(7) **Electro-surgical apparatus**. These utilise high-frequency electric currents, the needle, probe, etc., forming one of the electrodes. They can be employed to cut tissues (**electrocutting**) with a lancet (electric lancet), or to coagulate the blood (**electrocoagulation**). Certain combined instruments may, by the use of control pedals, be made to act interchangeably as electrocutters or electrocoagulators.

(8) **Actinotherapy apparatus**. These employ radiations within, or more generally just outside, the visible spectrum (infra-red, ultra-violet) for treatment of certain diseases or for diagnostic purposes (special lighting to reveal skin diseases). This apparatus generally incorporates lamps, though infra-red ray apparatus may be fitted with heating resistances or heating panels with reflectors.

(9) **Artificial incubators for babies**. Basically these consist of a transparent cubicle of plastics, electrical heating equipment, safety and warning devices, and oxygen and air filtering and regulating apparatus. In most cases they are mounted on a trolley and have built-in baby scales.

Cases containing electrodes or other devices for use with the apparatus described above are also included in this group.

This heading also **excludes** prenatal listening apparatus for non-medical use of **heading 85.18** (see the Explanatory Note to that heading).

90.18

PARTS AND ACCESSORIES

Subject to the provisions of Notes 1 and 2 to this Chapter (see the General Explanatory Note), parts and accessories of apparatus or appliances of this heading remain classified here.

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Subheading Explanatory Notes.

Subheading 9018.12

This subheading covers electro-diagnostic ultrasonic scanning apparatus. This apparatus operates by sending high-frequency sound waves into the human body through a transducer. The transducer is placed in contact with the body, and alternately emits short pulses of ultrasound and " listens " for their echoes. The echoes result from the sound waves being reflected by the organs within the body, and their characteristics are interpreted to yield information about the location, size, shape and texture of the tissues. Interpretation is generally carried out by an automatic data processing machine, with the output being presented as a video image of the tissues.

This method of body scanning is used for examining the foetuses of pregnant women. It is also well suited for the examination of the breasts, heart, liver and gall-bladder.

Subheading 9018.13

Magnetic Resonance Imaging (MRI) relies on the principle that the nuclei of hydrogen atoms will align when subjected to an intense magnetic field. If a radio frequency is then aimed at these atoms, the alignment of the nuclei will shift. When the radio waves are turned off, the nuclei realign themselves, transmitting in the process a small electric signal. As the human body is primarily composed of hydrogen atoms, an image of virtually any area of the body can be generated from the returning pulses. Since the hydrogen represents water content, the returning pulses can be used to make distinctions between tissues. This makes it possible to obtain an image of bone-marrow and tissue.

The electro-diagnostic magnetic resonance imaging apparatus of this subheading consists of a huge electro-magnet, a radio-frequency generator and an automatic data processing machine for evaluation. It must be installed in a room completely shielded from external radio-frequencies. To obtain the intense magnetic field required, the electro-magnets are supercooled by means of liquid helium.

Hydrogen was chosen as the basis for magnetic resonance imaging because of its abundance in the human body and its prominent magnetic characteristics. It is also possible to use other elements such as, for example, sodium or phosphorus.

Subheading 9018.14

The electro-diagnostic apparatus of this subheading is used to obtain an image of the distribution of gamma rays in the human body. This image is produced using suitable apparatus such as the scintigraphic scanner and, above all, the gamma camera.

These nuclear scanners require giving the patient an oral dose or injection of a radioactive compound (the tracer) which is quickly absorbed by the organ being studied. The body is then scanned with a gamma counter, which records the amount of radiation emitted by the tracer as it penetrates the target organ (for example, the brain), in order to determine where the radio-isotope is absorbed.

A video picture is produced by automatic data processing machine analysis of the radiation detected. This picture is a patchwork of light and dark areas or contrasting colours which show where in the organ the radio-isotope was taken up. Such scans provide information about both the structure and the function of the organ concerned.

An example of scintigraphic apparatus is the Positron Emission Tomography (PET) scanner. It combines the principles of nuclear medicine with the imaging techniques used in the Computed Tomography (CT) scanner (see the Subheading Explanatory Note to subheading 9022.12).