

**CPC****COOPERATIVE PATENT CLASSIFICATION****A61B**

**DIAGNOSIS; SURGERY; IDENTIFICATION** (analysing biological material [G01N](#), e.g. [G01N 33/48](#); obtaining records using waves other than optical waves, in general [G03B 42/00](#))

**NOTE**

This subclass covers instruments, implements and processes for diagnostic, surgical and person-identification purposes, including obstetrics, instruments for cutting corns, vaccination instruments, finger-printing, psycho-physical tests.

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">A61B 5/0295</a>	covered by	<a href="#">A61B 5/026</a>	
<a href="#">A61B 5/151</a>	covered by	<a href="#">A61B 5/1411</a>	
<a href="#">A61B 5/153</a>	covered by	<a href="#">A61B 5/1405</a>	
<a href="#">A61B 5/154</a>	covered by	<a href="#">A61B 5/1438</a>	
<a href="#">A61B 5/157</a>	covered by	<a href="#">A61B 5/00</a>	and s. gr.
<a href="#">A61B 17/03</a>	covered by	<a href="#">A61B 17/00</a>	
<a href="#">A61B 17/125</a>	covered by	<a href="#">A61B 17/122</a>	
<a href="#">A61B 17/138</a>	covered by	<a href="#">A61B 17/12</a>	
<a href="#">A61B 17/76</a>	covered by	<a href="#">A61B 17/744</a>	
<a href="#">A61B 17/78</a>	covered by	<a href="#">A61B 17/744</a>	
<a href="#">A61B 17/90</a>	covered by	<a href="#">A61B 17/88</a>	
<a href="#">A61B 17/94</a>	covered by	<a href="#">A61B 17/29</a>	

**Diagnosis; Psycho-physical tests****A61B 1/00**

**Instruments for performing medical examinations of the interior of cavities or tubes of the body by visual or photographic inspection, e.g. endoscopes** (examination of body cavities or body tracts using ultrasonic, sonic or infrasonic waves [A61B 8/12](#); instruments, e.g. endoscopes, for taking a cell sample [A61B 10/00](#); endoscopic cutting instruments [A61B 17/32](#); surgical instruments using a laser beam being directed along or through a flexible conduit [A61B 18/22](#); technical endoscopes [G02B 23/24](#)); **illuminating arrangements therefor** (for the eyes [A61B 3/00](#))

<a href="#">A61B 1/00002</a>	. {Operational features of endoscopes}
<a href="#">A61B 1/00004</a>	. . {characterised by electronic signal processing}
<a href="#">A61B 1/00006</a>	. . . {of control signals}
<a href="#">A61B 1/00009</a>	. . . {of image signals ( <a href="#">G06T</a> takes precedence)}
<a href="#">A61B 1/00011</a>	. . {characterised by data transmission}
<a href="#">A61B 1/00013</a>	. . . {using optical means}

- A61B 1/00016 . . . {using wireless means}
- A61B 1/00018 . . . {using electrical cables}
- A61B 1/0002 . . {provided with data storages}
- A61B 1/00022 . . . {removable}
- A61B 1/00025 . . {characterised by power management}
- A61B 1/00027 . . . {characterised by power supply}
- A61B 1/00029 . . . . {externally powered, e.g. wireless}
- A61B 1/00032 . . . . {internally powered}
- A61B 1/00034 . . . . . {rechargeable}
- A61B 1/00036 . . . {Means for power saving, e.g. sleeping mode}
- A61B 1/00039 . . {provided with data input arrangements for the user}
- A61B 1/00041 . . . {for user message recording}
- A61B 1/00043 . . {provided with signal output arrangements}
- A61B 1/00045 . . . {Display arrangement}
- A61B 1/00048 . . . . {Constructional features of the display}
- A61B 1/0005 . . . . {for multiple images}
- A61B 1/00052 . . . . {positioned at proximal end of the endoscope body}
- A61B 1/00055 . . . {for alerting the user}
- A61B 1/00057 . . {provided with means for testing or calibration}
- A61B 1/00059 . . {provided with identification means for the endoscope}
- A61B 1/00062 . . {provided with means for preventing overuse}
- A61B 1/00064 . {Constructional details of the endoscope body}
- A61B 1/00066 . . {Proximal part of endoscope body, e.g. handles ([A61B 1/0052 takes precedence](#))}
- A61B 1/00068 . . . {Valve switch arrangements}
- A61B 1/00071 . . {Insertion part of the endoscope body ([A61B 1/0055 takes precedence](#))}
- A61B 1/00073 . . . {with externally grooved shaft}
- A61B 1/00075 . . . {with externally roughened shaft}
- A61B 1/00078 . . . {with stiffening means}
- A61B 1/0008 . . . {characterised by distal tip features}
- A61B 1/00082 . . . . {Balloons}
- A61B 1/00085 . . . . {Baskets}
- A61B 1/00087 . . . . {Tools ([A61B 17/00234 takes precedence](#))}
- A61B 1/00089 . . . . {Hoods}
- A61B 1/00091 . . . . {Nozzles}
- A61B 1/00094 . . . . {Suction openings}
- A61B 1/00096 . . . . {Optical elements}
- A61B 1/00098 . . . . {Deflecting means for inserted tools}
- A61B 1/00101 . . . . {the distal tip features being detachable}
- A61B 1/00103 . . {designed for single use}

- A61B 1/00105 . . {characterised by modular construction}
- A61B 1/00108 . . {characterised by self-sufficient functionality for stand-alone use}
- A61B 1/0011 . . {Manufacturing of endoscope parts}
- A61B 1/00112 . {Connection or coupling means}
- A61B 1/00114 . . {Electrical cables for connection to external units}
- A61B 1/00117 . . {Optical cables, e.g. for connection to an external light source}
- A61B 1/00119 . . {Tubes or pipes, e.g. for fluid supply to the endoscope}
- A61B 1/00121 . . {Connectors, fasteners and adapters, e.g. on the endoscope handle}
- A61B 1/00124 . . . {electrical, e.g. electrical plug-and-socket connection}
- A61B 1/00126 . . . {optical, e.g. for light supply cables}
- A61B 1/00128 . . . {mechanical, e.g. for tubes or pipes}
- A61B 1/00131 . {Accessories for endoscopes}
- A61B 1/00133 . . {Drive units, e.g. for endoscopic tools}
- A61B 1/00135 . . {Oversleeves ([A61B 1/00142](#) takes precedence)}
- A61B 1/00137 . . {End pieces, e.g. caps, seals, forceps plugs}
- A61B 1/0014 . . {Fastening elements for attaching accessories to the outside of an endoscope shaft, e.g. clips, clamps or bands}
- A61B 1/00142 . {with means for preventing contamination, e.g. by using a sanitary sheath}
- A61B 1/00144 . . {Hygienic packaging}
- A61B 1/00147 . {Holding or positioning arrangements}
- A61B 1/00149 . . {using articulated arms}
- A61B 1/00151 . . {using everted tubes}
- A61B 1/00154 . . {using guide tubes}
- A61B 1/00156 . . {using self propulsion}
- A61B 1/00158 . . {using magnetic field}
- A61B 1/0016 . . {using motor drive units}
- A61B 1/00163 . {Optical arrangements ([A61B 1/002](#), [A61B 1/06](#) take precedence)}
- A61B 1/00165 . . {with light-conductive means, e.g. fibre optics ([A61B 1/07](#) takes precedence)}
- A61B 1/00167 . . . {Details of optical fibre bundles, e.g. shape or fibre distribution}
- A61B 1/0017 . . . {Details of single optical fibres, e.g. material or cladding}
- A61B 1/00172 . . {with means for scanning}
- A61B 1/00174 . . {characterised by the viewing angles}
- A61B 1/00177 . . . {for 90 degrees side-viewing}
- A61B 1/00179 . . . {for off-axis viewing}
- A61B 1/00181 . . . {for multiple fixed viewing angles ([A61B 1/00193](#) takes precedence)}
- A61B 1/00183 . . . {for variable viewing angles}
- A61B 1/00186 . . {with imaging filters}
- A61B 1/00188 . . {with focusing or zooming features}
- A61B 1/0019 . . . {characterised by variable lenses}

- A61B 1/00193 . . {adapted for stereoscopic vision}
- A61B 1/00195 . . {with eyepieces}
- A61B 1/00197 . . . {characterised by multiple eyepieces}
- A61B 1/002 . having rod-lens arrangements ([A61B 1/055](#) takes precedence)
- A61B 1/005 . Flexible endoscopes
- A61B 1/0051 . . {with controlled bending of insertion part}
- A61B 1/0052 . . . {Constructional details of control elements, e.g. handles}
- A61B 1/0053 . . . . {using distributed actuators, e.g. artificial muscles}
- A61B 1/0055 . . . {Constructional details of insertion parts, e.g. vertebral elements}
- A61B 1/0056 . . . . {the insertion parts being asymmetric, e.g. for unilateral bending mechanisms}
- A61B 1/0057 . . . {Constructional details of force transmission elements, e.g. control wires}
- A61B 1/0058 . . {using shape-memory elements}
- A61B 1/008 . . Articulations
- A61B 1/01 . . Guiding arrangements therefore
- A61B 1/012 . characterised by internal passages or accessories therefor
- A61B 1/0125 . . {Endoscope within endoscope}
- A61B 1/015 . . Control of fluid supply or evacuation
- A61B 1/018 . . for receiving instruments
- A61B 1/04 . combined with photographic or television appliances {(camera adapters [G03B 17/48](#))}
- A61B 1/041 . . {Capsule endoscopes for imaging}
- A61B 1/042 . . {characterised by a proximal camera, e.g. a CCD camera}
- A61B 1/043 . . {for fluorescence imaging}
- A61B 1/045 . . Control therefor
- A61B 1/05 . . characterised by the image sensor, e.g. camera, being in the distal end portion
- A61B 1/051 . . . {Details of CCD assembly}
- A61B 1/053 . . . {being detachable}
- A61B 1/055 . . having rod-lens arrangements
- A61B 1/06 . with illuminating arrangements
- A61B 1/0607 . . {for annular illumination}
- A61B 1/0615 . . {for radial illumination}
- A61B 1/0623 . . {for off-axis illumination}
- A61B 1/063 . . {for monochromatic illumination}
- A61B 1/0638 . . {providing two or more wavelengths}
- A61B 1/0646 . . {with illumination filters}
- A61B 1/0653 . . {with wavelength conversion}
- A61B 1/0661 . . {Endoscope light sources}
- A61B 1/0669 . . . {at proximal end of an endoscope}
- A61B 1/0676 . . . {at distal tip of an endoscope}

- A61B 1/0684 . . . {using light emitting diodes [LED]}
- A61B 1/0692 . . . {head mounted}
- A61B 1/07 . . using light-conductive means, e.g. optical fibres
- A61B 1/12 . with cooling or rinsing arrangements
- A61B 1/121 . . {provided with means for cleaning post-use}
- A61B 1/122 . . . {using cleaning tools, e.g. brushes}
- A61B 1/123 . . . {using washing machines}
- A61B 1/125 . . . {using fluid circuits}
- A61B 1/126 . . {provided with means for cleaning in-use}
- A61B 1/127 . . {with means for preventing fogging ([A61B 1/253](#) takes precedence)}
- A61B 1/128 . . {provided with means for regulating temperature}
- A61B 1/227 . for ears, i.e. otoscopes
- A61B 1/2275 . . {with controlled air pressure}
- A61B 1/233 . for the nose, i.e. nasoscopes, {e.g. testing of patency of Eustachian tubes}
- A61B 1/24 . for the mouth, i.e. stomatoscopes, e.g. with tongue depressors ([tongue depressors per se A61B 13/00](#)); Instruments for opening or keeping open the mouth ([combined with saliva removers A61C 17/00](#); [mouth openers for animals A61D 15/00](#))
- A61B 1/247 . . with means for viewing areas outside the direct line of sight, e.g. dentists' mirrors
- A61B 1/253 . . . with means for preventing fogging
- A61B 1/267 . for the respiratory tract, e.g. laryngoscopes, bronchoscopes
- A61B 1/2673 . . {for monitoring movements of vocal chords}
- A61B 1/2676 . . {Bronchoscopes}
- A61B 1/273 . for the upper alimentary canal, e.g. oesophagoscopes, gastroscopes
- A61B 1/2733 . . {Oesophagoscopes}
- A61B 1/2736 . . {Gastroscopes}
- A61B 1/303 . for the vagina, i.e. vaginoscopes
- A61B 1/307 . for the urinary organs, e.g. urethoscopes, cystoscopes
- A61B 1/31 . for the rectum, e.g. proctoscopes, sigmoidoscopes, {colonoscopes}
- A61B 1/313 . for introducing through surgical openings, e.g. laparoscopes
- A61B 1/3132 . . {for laparoscopy}
- A61B 1/3135 . . {for examination of the epidural or the spinal space}
- A61B 1/3137 . . {for examination of the interior of blood vessels}
- A61B 1/317 . . for bones or joints, e.g. osteoscopes, arthroscopes
- A61B 1/32 . Devices for opening or enlarging the visual field, e.g. of a tube of the body ([dilators A61M 29/00](#))
- A61B 3/00** **Apparatus for testing the eyes; Instruments for examining the eyes** ([eye inspection using ultrasonic, sonic or infrasonic waves A61B 8/10](#); [devices for treatment of the eyes A61F 9/00](#); [exercisers for the eyes A61H 5/00](#); [optical systems in general G02B](#))

- A61B 3/0008 . {provided with illuminating means ([A61B 3/117](#) takes precedence; gonioscopes used for laser treatment [A61F 9/009](#); illuminating means for optical instruments [G02B 27/00](#))}
- A61B 3/0016 . {Operational features thereof}
- A61B 3/0025 . . {characterised by electronic signal processing, e.g. eye models}
- A61B 3/0033 . . {characterised by user input arrangements}
- A61B 3/0041 . . {characterised by display arrangements}
- A61B 3/005 . . . {Constructional features of the display}
- A61B 3/0058 . . . {for multiple images}
- A61B 3/0066 . . {with identification means for the apparatus}
- A61B 3/0075 . {provided with adjusting devices, e.g. operated by control lever ([manipulators B25J](#))}
- A61B 3/0083 . {provided with means for patient positioning}
- A61B 3/0091 . {Fixation targets for viewing direction}
- A61B 3/02 . Subjective types, i.e. testing apparatus requiring the active assistance of the patient
- A61B 3/022 . . {for testing contrast sensitivity}
- A61B 3/024 . . for determining the visual field, e.g. perimeter types
- A61B 3/028 . . for testing visual acuity; for determination of refraction, e.g. phoropters
- A61B 3/0285 . . . {Phoropters}
- A61B 3/032 . . . Devices for presenting test symbols or characters, e.g. test chart projectors ([A61B 3/036](#) takes precedence)
- A61B 3/0325 . . . . {provided with red and green targets}
- A61B 3/036 . . . for testing astigmatism
- A61B 3/04 . . . Trial frames; Sets of lenses for use therewith ([lenses per se G02C 7/02](#))
- A61B 3/06 . . for testing light sensitivity, e.g. adaptation; for testing colour vision
- A61B 3/063 . . . {for testing light sensitivity, i.e. adaptation}
- A61B 3/066 . . . {for testing colour vision}
- A61B 3/08 . . for testing binocular or stereoscopic vision. e.g. strabismus
- A61B 3/085 . . . {for testing strabismus}
- A61B 3/09 . . for testing accommodation
- A61B 3/10 . Objective types, i.e. instruments for examining the eyes independent of the patients' perceptions or reactions
- A61B 3/1005 . . {for measuring distances inside the eye, e.g. thickness of the cornea ([A61B 3/11](#) takes precedence)}
- A61B 3/101 . . {for examining the tear film}
- A61B 3/1015 . . {for wavefront analysis}
- A61B 3/102 . . {for optical coherence tomography [OCT]}
- A61B 3/1025 . . {for confocal scanning}
- A61B 3/103 . . for determining refraction, e.g. refractometers, skiascopes
- A61B 3/1035 . . . {for measuring astigmatism ([testing astigmatism A61B 3/036](#))}
- A61B 3/107 . . for determining the shape or measuring the curvature of the cornea

- A61B 3/11 . . for measuring interpupillary distance or diameter of pupils
- A61B 3/111 . . . {for measuring interpupillary distance}
- A61B 3/112 . . . {for measuring diameter of pupils}
- A61B 3/113 . . for determining or recording eye movement
- A61B 3/117 . . for examining the anterior chamber or the anterior chamber angle, e.g. gonioscopes
- A61B 3/1173 . . . {for examining the eye lens}
- A61B 3/1176 . . . . {for determining lens opacity, e.g. cataract}
- A61B 3/12 . . for looking at the eye fundus, e.g. ophthalmoscopes ([A61B 3/13](#) takes precedence)
- A61B 3/1208 . . . {Multiple lens hand-held instruments}
- A61B 3/1216 . . . {for diagnostics of the iris}
- A61B 3/1225 . . . {using coherent radiation}
- A61B 3/1233 . . . . {for measuring blood flow, e.g. at the retina}
- A61B 3/1241 . . . {specially adapted for observation of ocular blood flow, e.g. by fluorescein angiography}
- A61B 3/125 . . . with contact lenses ([contact lenses per se G02C 7/04](#))
- A61B 3/13 . . Ophthalmic microscopes
- A61B 3/132 . . . {in binocular arrangement}
- A61B 3/135 . . . Slit-lamp microscopes
- A61B 3/14 . . Arrangements specially adapted for eye photography {(apparatus or arrangements for taking photographs per se [G03B](#))}
- A61B 3/145 . . . {by video means}
- A61B 3/15 . . . with means for aligning, spacing or blocking spurious reflection; {with means for relaxing}
- A61B 3/152 . . . . {for aligning}
- A61B 3/154 . . . . {for spacing}
- A61B 3/156 . . . . {for blocking}
- A61B 3/158 . . . . . {of corneal reflection}
- A61B 3/16 . . for measuring intraocular pressure, e.g. tonometers
- A61B 3/165 . . . {Non-contacting tonometers}
- A61B 3/18 . . Arrangement of plural eye-testing or -examining apparatus
- A61B 3/185 . . {characterised by modular construction}
  
- A61B 5/00** **Detecting, measuring or recording for diagnostic purposes** (radiation diagnosis [A61B 6/00](#); diagnosis by ultrasonic, sonic or infrasonic waves [A61B 8/00](#)); **Identification of persons** {(measuring or recording in general subclasses of [G01](#); medical informatics [G06F 19/30](#))}
- A61B 5/0002 . . {Remote monitoring of patients using telemetry, e.g. transmission of vital signals via a communication network ([A61B 5/07](#) takes precedence; transmission systems for measured values [G08C](#); transmission [H04B](#); transmission of digital information [H04L](#); wireless communication networks [H04W](#))}
- A61B 5/0004 . . {characterised by the type of physiological signal transmitted}



- A61B 5/0006 . . . {ECG or EEG signals}
- A61B 5/0008 . . . {Temperature signals}
- A61B 5/0011 . . . {Foetal or obstetric data}
- A61B 5/0013 . . . {Medical image data ([A61B 1/00011](#), [A61B 6/56](#), [A61B 8/56](#) take precedence)}
- A61B 5/0015 . . {characterised by features of the telemetry system}
- A61B 5/0017 . . . {transmitting optical signals ([transmission by light H04B 10/00](#))}
- A61B 5/002 . . . {Monitoring the patient using a local or closed circuit, e.g. in a room or building ([A61B 5/0017](#) takes precedence)}
- A61B 5/0022 . . . {Monitoring a patient using a global network, e.g. telephone networks, internet}
- A61B 5/0024 . . . {for multiple sensor units attached to the patient, e.g. using a body or personal area network}
- A61B 5/0026 . . {characterised by the transmission medium}
- A61B 5/0028 . . . {Body tissue as transmission medium, i.e. transmission systems where the medium is the human body}
- A61B 5/0031 . . {Implanted circuitry}
- A61B 5/0033 . {Features or image-related aspects of imaging apparatus classified in [A61B 5/00](#), e.g. for MRI, optical tomography or impedance tomography apparatus; arrangements of imaging apparatus in a room ([image data processing or generation G06T](#))}

**WARNING**

Group [A61B 5/0033](#) and subgroups are not complete pending a reorganisation

- A61B 5/0035 . . {adapted for acquisition of images from more than one imaging mode, e.g. combining MRI and optical tomography}
- A61B 5/0037 . . {Performing a preliminary scan, e.g. a prescan for identifying a region of interest}
- A61B 5/004 . . {adapted for image acquisition of a particular organ or body part ([A61B 5/0082](#) takes precedence; [arrangements for optical scanning A61B 5/0062](#))}
- A61B 5/0042 . . . {for the brain}
- A61B 5/0044 . . . {for the heart}
- A61B 5/0046 . . {Arrangements of imaging apparatus in a room, e.g. room provided with shielding or for improved access to apparatus}
- A61B 5/0048 . {Detecting, measuring or recording by applying mechanical forces or stimuli ([A61B 5/021](#), [A61B 5/4884](#) and [A61B 9/00](#) take precedence)}
- A61B 5/0051 . . {by applying vibrations}
- A61B 5/0053 . . {by applying pressure, e.g. compression, indentation, palpation, grasping, gauging}
- A61B 5/0055 . . {by applying suction}
- A61B 5/0057 . . {by applying motion other than vibrations, e.g. rolling, rubbing, applying a torque, tribometry}



- A61B 5/0059
  - {using light, e.g. diagnosis by transillumination, diascopy, fluorescence ([A61B 5/0093](#), [A61B 5/1455](#), [A61B 5/02416](#) and [A61B 5/0261](#) take precedence)}
- A61B 5/0062
  - • {Arrangements for scanning}
  - WARNING**
  - Group [A61B 5/0062](#) and subgroups are not complete pending a reorganisation, see also group [A61B 5/0059](#)
- A61B 5/0064
  - • • {Body surface scanning}
- A61B 5/0066
  - • • {Optical coherence imaging}
- A61B 5/0068
  - • • {Confocal scanning}
- A61B 5/0071
  - • {by measuring fluorescence emission}
- A61B 5/0073
  - • {by tomography, i.e. reconstruction of 3D images from 2D projections ([A61B 5/0066](#) takes precedence)}
- A61B 5/0075
  - • {by spectroscopy, i.e. measuring spectra, e.g. Raman spectroscopy, infrared absorption spectroscopy ([A61B 5/0071](#) takes precedence)}
- A61B 5/0077
  - • {Devices for viewing the surface of the body, e.g. camera, magnifying lens}
- A61B 5/0079
  - • • {using mirrors, i.e. for self-examination}
- A61B 5/0082
  - • {adapted for particular medical purposes}
- A61B 5/0084
  - • • {for introduction into the body, e.g. by catheters ([A61B 5/1459](#) takes precedence)}
- A61B 5/0086
  - • • • {using infra-red radiation}
- A61B 5/0088
  - • • {for oral or dental tissue}
- A61B 5/0091
  - • • {for mammography}
- A61B 5/0093
  - {Detecting, measuring or recording by applying one single type of energy and measuring its conversion into another type of energy}
- A61B 5/0095
  - • {by applying light and detecting acoustic waves, i.e. photoacoustic measurements}
- A61B 5/0097
  - • {by applying acoustic waves and detecting light, i.e. acoustooptic measurements}
- A61B 5/01
  - Measuring temperature of body parts; {Diagnostic temperature sensing, e.g. for malignant or inflamed tissue} (clinical thermometers [G01K 5/22](#); thermometers for special purposes [G01K 13/00](#))
- A61B 5/015
  - • {By temperature mapping of body part }
- A61B 5/02
  - Detecting, measuring or recording pulse, heart rate, blood pressure or blood flow; Combined pulse/heart-rate/blood pressure determination; Evaluating a cardiovascular condition not otherwise provided for, e.g. using combinations of techniques provided for in this group with electrocardiography or electroauscultation; Heart catheters for measuring blood pressure
- A61B 5/02007
  - • {Evaluating blood vessel condition, e.g. elasticity, compliance}
- A61B 5/02014
  - • • {Determining aneurysm}
- A61B 5/02021
  - • • {Determining capillary fragility}
- A61B 5/02028
  - • {Determining haemodynamic parameters not otherwise provided for, e.g. cardiac contractility or left ventricular ejection fraction}
- A61B 5/02035
  - • • {Determining blood viscosity}

- A61B 5/02042 . . {Determining blood loss or bleeding, e.g. during a surgical procedure}
- A61B 5/0205 . . Simultaneously evaluating both cardiovascular conditions and different types of body conditions, e.g. heart and respiratory condition
- A61B 5/02055 . . . {Simultaneously evaluating both cardiovascular condition and temperature}
- A61B 5/021 . . Measuring pressure in heart or blood vessels ([A61B 5/0205](#) takes precedence)
- A61B 5/02108 . . . {from analysis of pulse wave characteristics}
- A61B 5/02116 . . . . {of pulse wave amplitude ([A61B 5/02225](#) takes precedence)}
- A61B 5/02125 . . . . {of pulse wave propagation time}
- A61B 5/02133 . . . {by using induced vibration of the blood vessel}
- A61B 5/02141 . . . {Details of apparatus construction, e.g. pump units or housings therefor, cuff pressurising systems, arrangements of fluid conduits or circuits ([A61B 5/02233](#), [A61B 5/0235](#) take precedence)}
- A61B 5/0215 . . . by means inserted into the body ([catheters A61M 25/00](#))
- A61B 5/02152 . . . . {specially adapted for venous pressure}
- A61B 5/02154 . . . . {by optical transmission}
- A61B 5/02156 . . . . {Calibration means}
- A61B 5/02158 . . . . {provided with two or more sensor elements}
- A61B 5/022 . . . by applying pressure to close blood vessels, e.g. against the skin; Ophthalmodynamometers
- A61B 5/02208 . . . . {using the Korotkoff method}
- A61B 5/02216 . . . . {Ophthalmodynamometers}
- A61B 5/02225 . . . . {using the oscillometric method}
- A61B 5/02233 . . . . {Occluders specially adapted therefor ([tourniquets A61B 17/132](#))}
- A61B 5/02241 . . . . . {of small dimensions, e.g. adapted to fingers}
- A61B 5/0225 . . . . the pressure being controlled by electric signals, e.g. derived from Korotkoff sounds
- A61B 5/02255 . . . . . {the pressure being controlled by plethysmographic signals, e.g. derived from optical sensors}
- A61B 5/023 . . . . the pressure transducers comprising a liquid column
- A61B 5/0235 . . . . Valves specially adapted therefor
- A61B 5/024 . . Detecting, measuring or recording pulse rate or heart rate ([A61B 5/0205](#), [A61B 5/021](#) take precedence)
- A61B 5/02405 . . . {Determining heart rate variability}
- A61B 5/02411 . . . {of foetuses}
- A61B 5/02416 . . . {using photoplethysmograph signals, e.g. generated by infra-red radiation ([A61B 5/14552](#) takes precedence)}
- A61B 5/02422 . . . . {within occluders}
- A61B 5/02427 . . . . {Details of sensor}
- A61B 5/02433 . . . . . {for infra-red radiation}
- A61B 5/02438 . . . {with portable devices, e.g. worn by the patient}
- A61B 5/02444 . . . {Details of sensor ([A61B 5/02427](#) takes precedence)}

- A61B 5/0245 . . . by using sensing means generating electric signals, {i.e. ECG signals}
- A61B 5/02455 . . . . {provided with high/low alarm devices}
- A61B 5/025 . . . . within occluders, e.g. responsive to Korotkoff sounds (electric stethoscopes [A61B 7/04](#))
- A61B 5/0255 . . . Recording instruments specially adapted therefor
- A61B 5/026 . . Measuring blood flow {([A61B 3/1233](#), [A61B 3/1241](#) take precedence)}
- A61B 5/0261 . . . {using optical means, e.g. infra-red light}
- A61B 5/0263 . . . {using NMR}
- A61B 5/0265 . . . using electromagnetic means, e.g. electromagnetic flowmeter
- A61B 5/027 . . . . using catheters
- A61B 5/0275 . . . using tracers, e.g. dye dilution
- A61B 5/02755 . . . . {Radioactive tracers}
- A61B 5/028 . . . . by thermo-dilution
- A61B 5/0285 . . . Measuring or recording phase velocity of blood waves
- A61B 5/029 . . . Measuring or recording blood output from the heart, e.g. minute volume {([A61B 8/065](#) takes precedence)}
- A61B 5/0295 . . . using plethysmography, i.e. measuring the variations in the volume of a body part as modified by the circulation of blood therethrough, e.g. impedance plethysmography

**WARNING**

This sub-group is not complete pending the completion of a reclassification; see also groups [A61B 5/026](#)

- A61B 5/03 . Detecting, measuring or recording fluid pressure within the body other than blood pressure, e.g. cerebral pressure; {Measuring pressure in body tissues or organs ([A61B 5/205](#) takes precedence)}
- A61B 5/031 . . {Intracranial pressure}
- A61B 5/032 . . {Spinal fluid pressure}
- A61B 5/033 . . {Uterine pressure}
- A61B 5/035 . . . {Intra-uterine probes therefor}
- A61B 5/036 . . {by means introduced into body tracts ([A61B 5/032](#) and [A61B 5/035](#) take precedence)}
- A61B 5/037 . . . {Measuring oesophageal pressure}
- A61B 5/038 . . . {Measuring oral pressure}
- A61B 5/04 . Detecting, measuring or recording bioelectric signals of the body of parts thereof
- A61B 5/04001 . . {adapted to neuroelectric signals, e.g. nerve impulses}
- A61B 5/04002 . . {Measuring direct current (D.C.) or slowly varying biopotentials}
- A61B 5/04004 . . {Input circuits for EEG-, or EMG-signals}
- A61B 5/04005 . . {Detecting magnetic fields produced by bio-electric currents (measuring magnetic variables in general [G01R 33/00](#))}
- A61B 5/04007 . . . {specially adapted for magnetocardiographic signals}
- A61B 5/04008 . . . {specially adapted for magneto-encephalographic signals}

- A61B 5/04009 . . . . {using evoked response}
- A61B 5/04011 . . {Vector-cardiography}
- A61B 5/04012 . . {Analysis of electro-cardiograms, electro-encephalograms, electro-myograms}
- A61B 5/04014 . . . {by measuring frequency distribution using a set of filters (arrangements for analysing frequency spectra in general [G01R 23/00](#))}
- A61B 5/04015 . . . . {provided with alarm devices}
- A61B 5/04017 . . . {by using digital filtering}
- A61B 5/04018 . . . . {provided with alarm devices}
- A61B 5/0402 . . Electrocardiography, i.e. ECG
- A61B 5/04021 . . . {ECG simulator circuits}
- A61B 5/04023 . . . {Physical templates or devices for measuring ECG waveforms, e.g. an electrocardiograph ruler or caliper ([A61B 5/04525](#) takes precedence)}
- A61B 5/04025 . . . {Preparing electrode site, e.g. by abrasion}
- A61B 5/04026 . . . {Means for providing electrolyte, e.g. syringes}
- A61B 5/04028 . . . {Generation of artificial ECG signals based on measured signals, e.g. to compensate for missing leads}
- A61B 5/0404 . . . Hand-held devices
- A61B 5/0408 . . . Electrodes specially adapted therefor (for foetal cardiography [A61B 5/0448](#); for electroencephalograph signals [A61B 5/0478](#); for electromyography [A61B 5/0492](#))
- A61B 5/04082 . . . . {attached by means of suction}
- A61B 5/04085 . . . . {Multiple electrode holders ([A61B 5/04286](#), [A61B 5/0422](#) take precedence)}
- A61B 5/04087 . . . . {using conductive adhesive means}
- A61B 5/0416 . . . . connected by means of snap fasteners
- A61B 5/042 . . . . for introducing into the body
- A61B 5/0421 . . . . . {Endotracheal, oesophageal or gastric probes}
- A61B 5/0422 . . . . . {Multiple electrode holders}
- A61B 5/0424 . . . . Protection against electrode failure
- A61B 5/0428 . . . Input circuits specially adapted therefor
- A61B 5/04282 . . . . {using insulating or floating elements, e.g. transformers, opto-couplers (transformers for specific applications [H01F 38/00](#); amplifiers [H03F](#); optocouplers [H04B 10/80](#))}
- A61B 5/04284 . . . . {Capacitive or ionised electrodes, e.g. MOSFET}
- A61B 5/04286 . . . . {Patient cord assembly, e.g. cable harness}
- A61B 5/04288 . . . . {Switching circuits}
- A61B 5/0432 . . . Recording apparatus specially adapted therefor
- A61B 5/04325 . . . . {using integrated circuit memory devices}
- A61B 5/0436 . . . . Magnetic recording apparatus
- A61B 5/04365 . . . . . {Playback at speeds other than the recording speed}
- A61B 5/044 . . . Displays specially adapted therefor {(arrangements for displaying electric variables or waveforms, e.g. cathode-ray oscilloscopes, [G01R 13/00](#))}

- A61B 5/0444 . . . Foetal cardiography
- A61B 5/0448 . . . . Electrodes specially adapted therefor, e.g. scalp electrodes
- A61B 5/04485 . . . . . {attached by means of suction}
- A61B 5/0452 . . . Detecting specific parameters of the electrocardiograph cycle
- A61B 5/04525 . . . . {by template matching}
- A61B 5/0456 . . . . Detecting R peaks, e.g. for synchronising diagnostic apparatus  
{(physiological signal analysis for synchronising or triggering a measurement or image acquisition [A61B 5/7285](#))}
- A61B 5/046 . . . . Detecting fibrillation
- A61B 5/0464 . . . . Detecting tachycardia or brachycardia
- A61B 5/0468 . . . . Detecting abnormal ECG interval, {e.g. extrasystoles, ectopic heartbeats}
- A61B 5/0472 . . . . Detecting abnormal QRS complex, {e.g. widening}
- A61B 5/0476 . . Electroencephalography {(devices for psychotechnics [A61B 5/16](#))}
- A61B 5/0478 . . . Electrodes specially adapted therefor
- A61B 5/048 . . . Detecting the frequency distribution of signals {(analysing frequency spectra in general [G01R 23/00](#))}
- A61B 5/0482 . . . using biofeedback {(biofeedback per se [A61B 5/486](#))}
- A61B 5/0484 . . . using evoked response
- A61B 5/04842 . . . . {visually}
- A61B 5/04845 . . . . {acoustically or auditory}
- A61B 5/04847 . . . . {olfactory or gustatory}
- A61B 5/0488 . . Electromyography
- A61B 5/04882 . . . {of genito-urinary organs}
- A61B 5/04884 . . . {Detecting gastro-intestinal contractions}
- A61B 5/04886 . . . {specially adapted for electroglottography or electropalatography}
- A61B 5/04888 . . . {Control of prosthetics}
- A61B 5/0492 . . . Electrodes specially adapted therefor, e.g. needle electrodes
- A61B 5/0496 . . Electro-oculography, e.g. detecting nystagmus {(measuring or inducing nystagmus [A61B 5/4863](#))}
- A61B 5/05 . Detecting, measuring or recording for diagnosis by means of electric currents or magnetic fields; {Measuring using microwaves or radiowaves} ([A61B 5/02](#), [A61B 5/04](#), [A61B 5/11](#) take precedence)
- A61B 5/0507 . . {using microwaves or terahertz waves}
- A61B 5/0515 . . {Magnetic particle imaging}
- A61B 5/0522 . . {Magnetic induction tomography}
- A61B 5/053 . . Measuring electrical impedance or conductance of a portion of the body
- A61B 5/0531 . . . {Measuring skin impedance}
- A61B 5/0532 . . . . {specially adapted for acupuncture}
- A61B 5/0533 . . . . {Measuring galvanic skin response, e.g. by lie detector}
- A61B 5/0534 . . . {Testing vitality of teeth}
- A61B 5/0535 . . . {impedance plethysmography}

- A61B 5/0536 . . . {Impedance imaging, e.g. by tomography}
  - A61B 5/0537 . . . {Measuring body composition by impedance, e.g. tissue hydration or fat content}
  - A61B 5/0538 . . . {invasively, e.g. using a catheter}
  - A61B 5/055 . . involving electronic or nuclear magnetic resonance, e.g. magnetic resonance imaging (arrangements or instruments for measuring magnetic variables involving electronic or nuclear magnetic resonance, in general [G01R 33/20](#))
  - A61B 5/0555 . . . {Means for positioning of patients (for radiation diagnosis or therapy [A61B 6/04](#))}
  - A61B 5/06 . Devices, other than using radiation, for detecting or locating foreign bodies (or removing same [A61B 17/50](#)); {determining position of probes within or on the body of the patient}
  - A61B 5/061 . . {Determining position of a probe within the body employing means separate from the probe, e.g. sensing internal probe position employing impedance electrodes on the surface of the body ([A61B 1/00158](#) takes precedence)}
- WARNING**
- [A61B 5/061](#) and subgroups are not complete pending a reorganisation, see also group(s) [A61B 5/06](#)
- A61B 5/062 . . . {using magnetic field}
  - A61B 5/063 . . . {using impedance measurements}
  - A61B 5/064 . . . {using markers ([A61B 5/062](#) takes precedence)}
  - A61B 5/065 . . {Determining position of the probe employing exclusively positioning means located on or in the probe e.g. using position sensors arranged on the probe}
- WARNING**
- [A61B 5/065](#) and subgroups are not complete pending a reorganisation, see also group [A61B 5/06](#)
- A61B 5/066 . . . {Superposing sensor position on an image of the patient, e.g. obtained by ultrasound or x-ray imaging}
  - A61B 5/067 . . . {using accelerometers or gyroscopes}
  - A61B 5/068 . . . {using impedance sensors}
  - A61B 5/07 . Endoradiosondes
  - A61B 5/073 . . {Intestinal transmitters}
  - A61B 5/076 . . {Permanent implantations (telemetry using implanted circuitry [A61B 5/0031](#); implanted stimulators for therapy [A61N 1/362](#), [A61N 1/372](#))}
  - A61B 5/08 . Detecting, measuring or recording devices for evaluating the respiratory organs ([A61B 5/0205](#) takes precedence)
  - A61B 5/0803 . . {Recording apparatus specially adapted therefor}
  - A61B 5/0806 . . {by whole-body plethysmography (measuring blood flow using plethysmography [A61B 5/0295](#); impedance plethysmography [A61B 5/053](#); measuring volume of the body or parts thereof [A61B 5/1073](#))}
  - A61B 5/0809 . . {by impedance pneumography}
  - A61B 5/0813 . . {Measurement of pulmonary parameters by tracers, e.g. radioactive tracers}
  - A61B 5/0816 . . {Measuring devices for examining respiratory frequency (measuring frequency of electric signals [G01R 23/00](#))}



- A61B 5/082
  - . . {Evaluation by breath analysis, e.g. determination of the chemical composition of exhaled breath ([A61B 5/083](#), [A61B 5/091](#) take precedence)}
  - WARNING**
  - Group [A61B 5/082](#) is not complete pending a reorganisation, see also group [A61B 5/083](#)
- A61B 5/0823
  - . . {Detecting or evaluating cough events}
- A61B 5/0826
  - . . {Detecting or evaluating apnoea events ([A61B 5/4818](#) takes precedence)}
- A61B 5/083
  - . . Measuring rate of metabolism by using breath test, e.g. measuring rate of oxygen consumption
- A61B 5/0833
  - . . . {Measuring rate of oxygen consumption}
- A61B 5/0836
  - . . . {Measuring rate of CO<sub>2</sub> production}
- A61B 5/085
  - . . Measuring impedance of respiratory organs or lung elasticity
- A61B 5/087
  - . . Measuring breath flow
- A61B 5/0871
  - . . . {Peak expiratory flowmeters}
- A61B 5/0873
  - . . . {using optical means}
- A61B 5/0875
  - . . . {using means carried by the fluid stream, e.g. free floating balls}
- A61B 5/0876
  - . . . {using means deflected by the fluid stream, e.g. flaps}
- A61B 5/0878
  - . . . {using temperature sensing means}
- A61B 5/09
  - . . . using an element rotated by the flow {(toys actuated by air current [A63H 33/40](#))}
- A61B 5/091
  - . . Measuring volume of inspired or expired gases, e.g. to determine lung capacity
- A61B 5/093
  - . . . the gases being exhaled into, or inhaled from, an expansible chamber, e.g. bellows or expansible bag
- A61B 5/0935
  - . . . . {Recording apparatus specially adapted therefor}
- A61B 5/095
  - . . . . within a rigid container, e.g. the boundary being formed by a liquid surface
- A61B 5/097
  - . . Devices for facilitating collection of breath or for directing breath into or through measuring devices
- A61B 5/103
  - . Detecting, measuring or recording devices for testing the shape, pattern, {colour,} size or movement of the body or parts thereof, for diagnostic purposes ([A61B 5/08](#) takes precedence; measuring aids for tailors [A41H 1/00](#); measuring instruments specially adapted for dentistry [A61C 19/04](#))
- A61B 5/1032
  - . . {Determining colour for diagnostic purposes (measuring colour in general [G01J 3/46](#))}
- A61B 5/1034
  - . . . {by means of colour cards}
- A61B 5/1036
  - . . {Measuring load distribution, e.g. podologic studies}
- A61B 5/1038
  - . . . {Measuring plantar pressure during gait}
- A61B 5/107
  - . . Measuring physical dimensions, e.g. size of the entire body or parts thereof
- A61B 5/1071
  - . . . {measuring angles, e.g. using goniometers ([A61B 5/1123](#) takes precedence)}
- A61B 5/1072
  - . . . {measuring distances on the body, e.g. measuring length, height or thickness ([A61B 5/1076](#) takes precedence)}



- A61B 5/1073 . . . {Measuring volume, e.g. of limbs}
- A61B 5/1074 . . . {Foot measuring devices}
- A61B 5/1075 . . . {for measuring dimensions by non-invasive methods, e.g. for determining thickness of tissue layer ([A61B 8/0858](#) takes precedence)}
- A61B 5/1076 . . . {for measuring dimensions inside body cavities, e.g. using catheters ([A61B 3/1005](#) takes precedence)}
- A61B 5/1077 . . . {Measuring of profiles}
- A61B 5/1078 . . . . {by moulding}
- A61B 5/1079 . . . {using optical or photographic means}
- A61B 5/11 . . Measuring movement of the entire body or parts thereof, e.g. head or hand tremor, mobility of a limb (for measuring pulse [A61B 5/02](#) {; [A61B 5/1038](#) takes precedence; motion detection to correct for motion artifacts in physiological signals [A61B 5/721](#)})
- A61B 5/1101 . . . {Detecting tremor}
- A61B 5/1102 . . . {Ballistocardiography}
- A61B 5/1103 . . . {Detecting eye twinkling}
- A61B 5/1104 . . . {induced by stimuli or drugs; ([A61B 5/1102](#) takes precedence; investigating medicinal preparations [G01N 33/15](#))}
- A61B 5/1105 . . . . {of laboratory animals, e.g. activity}
- A61B 5/1106 . . . . {to assess neuromuscular blockade, e.g. to estimate depth of anaesthesia}
- A61B 5/1107 . . . {Measuring contraction of parts of the body, e.g. organ, muscle ([apparatus for measuring work or force in general G01L](#))}
- A61B 5/1108 . . . . {of excised organs, e.g. muscle preparations}
- A61B 5/1109 . . . . {of wounds, e.g. at the operation site}
- A61B 5/1111 . . . {Detecting tooth mobility}
- A61B 5/1112 . . . {Global tracking of patients, e.g. by using GPS}
- A61B 5/1113 . . . {Local tracking of patients, e.g. in a hospital or private home}
- A61B 5/1114 . . . . {Tracking parts of the body}
- A61B 5/1115 . . . . {Monitoring leaving of a patient support, e.g. a bed or a wheelchair}
- A61B 5/1116 . . . {Determining posture transitions}
- A61B 5/1117 . . . . {Fall detection}
- A61B 5/1118 . . . {Determining activity level}
- A61B 5/112 . . . {Gait analysis}
- A61B 5/1121 . . . {Determining geometric values, e.g. centre of rotation or angular range of movement}
- A61B 5/1122 . . . . {of movement trajectories}
- A61B 5/1123 . . . {Discriminating type of movement, e.g. walking or running ([A61B 5/1116](#), [A61B 5/112](#) take precedence)}
- A61B 5/1124 . . . {Determining motor skills}
- A61B 5/1125 . . . . {Grasping motions of hands}
- A61B 5/1126 . . . {using a particular sensing technique}
- A61B 5/1127 . . . . {using markers}

- A61B 5/1128 . . . . {using image analysis ([A61B 5/1127](#) takes precedence)}
- A61B 5/113 . . . occurring during breathing
- A61B 5/1135 . . . . {by monitoring thoracic expansion}
- A61B 5/117 . Identification of persons, e.g. finger-printing, foot-printing, impression techniques (dental impression cups or articulators [A61C 9/00](#), [A61C 11/00](#); recognition of data [G06K](#); recognising finger-prints [G06K 9/00](#); identification tags [G09F 3/00](#))
- A61B 5/1172 . . {Finger-printing}
- A61B 5/1174 . . {Foot-printing}
- A61B 5/1176 . . {Recognition of faces}
- A61B 5/1178 . . {Recognition by dental data}
- A61B 5/12 . Audiometering {Evaluation of the auditory system, not limited to hearing capacity ([A61B 5/04845](#), [A61B 5/4023](#) take precedence)}
- A61B 5/121 . . {evaluating hearing capacity}
- A61B 5/123 . . . {subjective methods}
- A61B 5/125 . . . {objective methods}
- A61B 5/126 . . . . {measuring compliance or mechanical impedance of the tympanic membrane}
- A61B 5/128 . . {evaluating tinnitus}
- A61B 5/14 . Devices for taking samples of blood (hypodermic syringes [A61M 5/00](#)); Measuring characteristics of blood in vivo, e.g. gas concentration within the blood, pH-value of blood (measuring of blood pressure [A61B 5/02](#); non-radiation detecting or locating of foreign bodies in blood [A61B 5/06](#))

**WARNING**

This group and its subgroups are no longer used for the classification of new documents as from April 1st, 2010. The backlog of these group is being continuously reclassified to [A61B 5/15](#) and subgroups

- A61B 5/1405 . . {Devices for taking blood samples (devices for taking samples of other body liquids [A61B 10/0045](#))}
- A61B 5/1411 . . . {by percutaneous method, e.g. by lancet}
- A61B 5/1416 . . . {by syringes containing more than one piston (medical syringes in general [A61M 5/178](#))}
- A61B 5/1422 . . . {provided with indicating means, e.g. for vein entry}
- A61B 5/1427 . . . {Multiple blood sampling, e.g. at periodic or pre-established intervals}
- A61B 5/1433 . . . {provided with locking means (details of syringes [A61M 5/315](#))}
- A61B 5/1438 . . . {using pre-evacuated means}
- A61B 5/1444 . . . . {Safety means, e.g. for locking cannula (Removing or disposing of used needles or syringes [A61M 5/3205](#))}
- A61B 5/145 . Measuring characteristics of blood in vivo, e.g. gas concentration, pH value; {Measuring characteristics of body fluids or tissues, e.g. interstitial fluid, cerebral tissue} (measuring of blood pressure or blood flow [A61B 5/02](#); non-radiation detecting or locating of foreign bodies in blood [A61B 5/06](#))
- A61B 5/14503 . . {invasive, e.g. introduced into the body by a catheter or needle or using implanted sensors ([A61B 5/1459](#), [A61B 5/1464](#), [A61B 5/1473](#), [A61B 5/1482](#), [A61B 5/14865](#) take precedence)}

- A61B 5/14507 . . {specially adapted for measuring characteristics of body fluids other than blood (devices for taking samples of body liquids [A61B 10/0045](#))}
- A61B 5/1451 . . . {for interstitial fluid}
- A61B 5/14514 . . . . {using means for aiding extraction of interstitial fluid, e.g. microneedles or suction}
- A61B 5/14517 . . . {for sweat}
- A61B 5/14521 . . . . {using means for promoting sweat production, e.g. heating the skin (measuring sweat secretion [A61B 5/4266](#))}
- A61B 5/14525 . . {using microdialysis}
- A61B 5/14528 . . . {invasively}
- A61B 5/14532 . . {for measuring glucose, e.g. by tissue impedance measurement}
- A61B 5/14535 . . {for measuring haematocrit}
- A61B 5/14539 . . {for measuring pH}
- A61B 5/14542 . . {for measuring blood gases ([A61B 5/14551](#) takes precedence)}
- A61B 5/14546 . . {for measuring analytes not otherwise provided for, e.g. ions, cytochromes}
- A61B 5/1455 . . using optical sensors, e.g. spectral photometrical oximeters
- A61B 5/14551 . . . {for measuring blood gases}
- A61B 5/14552 . . . . {Details of sensors specially adapted therefor}
- A61B 5/14553 . . . . {specially adapted for cerebral tissue}
- A61B 5/14555 . . . . {specially adapted for the eye fundus}
- A61B 5/14556 . . . . {by fluorescence ([A61B 5/14555](#) takes precedence)}
- A61B 5/14557 . . . . {specially adapted to extracorporeal circuits}
- A61B 5/14558 . . . {by polarisation}
- A61B 5/1459 . . . invasive, e.g. introduced into the body by a catheter {([A61B 5/1464](#) takes precedence)}
- A61B 5/1464 . . . specially adapted for foetal tissue
- A61B 5/1468 . . using chemical or electrochemical methods, e.g. by polarographic means {([A61B 5/1486](#) takes precedence)}
- A61B 5/1473 . . . invasive, e.g. introduced into the body by a catheter {([A61B 5/1482](#) takes precedence)}
- A61B 5/14735 . . . . {comprising an immobilised reagent}
- A61B 5/1477 . . . non-invasive
- A61B 5/1482 . . . specially adapted for foetal tissue
- A61B 5/1486 . . using enzyme electrodes, e.g. with immobilised oxidase
- A61B 5/14865 . . . {invasive, e.g. introduced into the body by a catheter or needle or using implanted sensors}
- A61B 5/1491 . . Heated applicators
- A61B 5/1495 . . Calibrating or testing of in-vivo probes
- A61B 5/15 . . Devices for taking samples of blood (hypodermic syringes [A61M 5/178](#))

**NOTE**

In these subgroups, the following terms are used with the meaning indicated:

## A61B 5/15

(continued)

- "piercing element" means skin penetrating component e.g. blade, needle, lancet, laser beam;
- "piercing or lancing device" means device ready to be used for lancing;
- "driving device" means device for driving a piercing element e.g. spring

**WARNING**

This group and its subgroups are not complete pending a reorganisation.  
See also [A61B 5/14](#), [A61B 5/1405](#) and subgroups

A61B 5/150007	. . . {Details}
A61B 5/150015	. . . {Source of blood}
A61B 5/150022	. . . . {for capillary blood or interstitial fluid}
A61B 5/15003	. . . . {for venous or arterial blood}
A61B 5/150038	. . . . {for blood from umbilical cord}
A61B 5/150045	. . . . {for blood from vagina, placenta, colon or mouth}
A61B 5/150053	. . . {for enhanced collection of blood or interstitial fluid at the sample site, e.g. by applying compression, heat, vibration, ultrasound, suction or vacuum to tissue; for reduction of pain or discomfort; Skin piercing elements, e.g. blades, needles, lancets or canulas, with adjustable piercing speed}
A61B 5/150061	. . . . {Means for enhancing collection}
A61B 5/150068	. . . . . {by tissue compression, e.g. with specially designed surface of device contacting the skin area to be pierced}
A61B 5/150076	. . . . . {by heating}
A61B 5/150083	. . . . . {by vibration, e.g. ultrasound}
A61B 5/150091	. . . . . {by electricity}
A61B 5/150099	. . . . . {by negative pressure, other than vacuum extraction into a syringe by pulling on the piston rod or into pre-evacuated tubes}
A61B 5/150106	. . . . . {Means for reducing pain or discomfort applied before puncturing; desensitising the skin at the location where body is to be pierced}
A61B 5/150114	. . . . . {by tissue compression, e.g. with specially designed surface of device contacting the skin area to be pierced}
A61B 5/150122	. . . . . {by heating}
A61B 5/150129	. . . . . {by cooling}
A61B 5/150137	. . . . . {by vibration (enhancing collection by vibration <a href="#">A61B 5/150175</a> )}
A61B 5/150145	. . . . . {by negative pressure, e.g. suction, vacuum}
A61B 5/150152	. . . . . {by an adequate mechanical impact on the puncturing location}
A61B 5/15016	. . . . . {by accessories for bringing the piercing element into the body, e.g. through rotation of the piercing element}
A61B 5/150167	. . . . . {Adjustable piercing speed of skin piercing element e.g. blade, needle, lancet or canula, for example with varying spring force or pneumatic drive}
A61B 5/150175	. . . {Adjustment of penetration depth}

A61B 5/150183	. . . .	{Depth adjustment mechanism using end caps mounted at the distal end of the sampling device, i.e. the end-caps are adjustably positioned relative to the piercing device housing for example by rotating or screwing}
A61B 5/15019	. . . .	{Depth adjustment mechanism using movable stops located inside the piercing device housing and limiting the travel of the drive mechanism (mechanisms using distal end caps <a href="#">A61B 5/150183</a> , mechanisms at the piercing element carrier proximal end <a href="#">A61B 5/150198</a> )}
A61B 5/150198	. . . .	{Depth adjustment mechanism at the proximal end of the carrier of the piercing element}
A61B 5/150206	. . .	{Construction or design features not otherwise provided for; manufacturing or production; packages; sterilisation of piercing element, piercing device or sampling device}
A61B 5/150213	. . . .	{Venting means}
A61B 5/150221	. . . .	{Valves}
A61B 5/150229	. . . .	{Pumps for assisting the blood sampling}
A61B 5/150236	. . . .	{Pistons, i.e. cylindrical bodies that sit inside the syringe barrel, typically with an air tight seal, and slide in the barrel to create a vacuum or to expel blood}
A61B 5/150244	. . . .	{Rods for actuating or driving the piston i.e. the cylindrical body that sits inside the syringe barrel, typically with an air tight seal, and slides in the barrel to create a vacuum or to expel blood}
A61B 5/150251	. . . .	{Collection chamber divided into at least two compartments, e.g. for division of samples (injection syringes having more than one chamber <a href="#">A61M 5/19</a> ; syringes for injection of two or more media <a href="#">A61M 5/2448</a> , <a href="#">A61M 5/284</a> ; sample preparation for further analysis <a href="#">A61B 5/150755</a> )}
A61B 5/150259	. . . .	{Improved gripping, e.g. with high friction pattern or projections on the housing surface or an ergonomic shape}
A61B 5/150267	. . . .	{Modular design or construction, i.e. subunits are assembled separately before being joined together or the device comprises interchangeable or detachable modules}
A61B 5/150274	. . . .	{Manufacture or production processes or steps for blood sampling devices}
A61B 5/150282	. . . . .	{for piercing elements e.g. blade, lancet, canula, needle}
A61B 5/15029	. . . . .	{for driving devices i.e. means for driving the piercing element}
A61B 5/150297	. . . . .	{for piercing devices i.e. devices ready to be used for lancing or piercing (for piercing elements <a href="#">A61B 5/150282</a> , for driving devices <a href="#">A61B 5/15029</a> )}
A61B 5/150305	. . . .	{Packages specially adapted for piercing devices or blood sampling devices (kits for diabetes <a href="#">A61M 5/003</a> ; packaging in general <a href="#">B65D</a> )}
A61B 5/150312	. . . .	{Sterilisation of piercing elements, piercing devices or sampling devices (piercing element stocking means, e.g. cartridges, <a href="#">A61B 5/15176</a> )}
A61B 5/15032	. . . . .	{by heating}
A61B 5/150328	. . . . .	{by aseptic fluid}
A61B 5/150335	. . . . .	{by radiation}

A61B 5/150343	. . .	{Collection vessels for collecting blood samples from the skin surface, e.g. test tubes, cuvettes (test tubes in general <a href="#">B01L 3/14</a> , sampling from within body cavities <a href="#">A61B 5/150015</a> , <a href="#">A61B 5/150045</a> )}
A61B 5/150351	. . .	{Caps, stoppers or lids for sealing or closing a blood collection vessel or container e.g. a test-tube or syringe barrel (caps for bottles or containers in general <a href="#">B65D 41/00</a> )}
A61B 5/150358	. . .	{Strips for collecting blood, e.g. absorbent (optical reagent test strips <a href="#">G01N 21/8483</a> ; chemical reagent test strips <a href="#">G01N 33/4875</a> , <a href="#">G01N 33/52</a> )}
A61B 5/150366	. . .	{Blood collection bags, e.g. connected to the patient by a catheter comprising means for removing a small sample of collected blood from the bag (collection bags as such <a href="#">A61J 1/05</a> , <a href="#">A61M 1/0209</a> )}
A61B 5/150374	. . .	{Details of piercing elements or protective means for preventing accidental injuries by such piercing elements (double-ended hollow needles <a href="#">A61B 5/150473</a> , <a href="#">A61B 5/150389</a> ; single-ended hollow needles <a href="#">A61B 5/150503</a> , <a href="#">A61B 5/150389</a> )}
A61B 5/150381	. . . .	{Design of piercing elements}
A61B 5/150389	. . . . .	{Hollow piercing elements, e.g. canulas, needles, for piercing the skin}
A61B 5/150396	. . . . .	{Specific tip design e.g. for improved penetration characteristics}
A61B 5/150404	. . . . .	{Specific design of proximal end}
A61B 5/150412	. . . . .	{Pointed piercing elements, e.g. needles, lancets for piercing the skin (blade-like piercing elements <a href="#">A61B 5/150442</a> )}
A61B 5/150419	. . . . .	{comprising means for capillary action}
A61B 5/150427	. . . . .	{Specific tip design e.g. for improved penetration characteristics}
A61B 5/150435	. . . . .	{Specific design of proximal end}
A61B 5/150442	. . . . .	{Blade-like piercing elements, e.g. blades, cutters, knives, for cutting the skin}
A61B 5/15045	. . . . .	{comprising means for capillary action}
A61B 5/150458	. . . . .	{Specific blade design e.g. for improved cutting and penetration characteristics}
A61B 5/150465	. . . . .	{Specific design of proximal end}
A61B 5/150473	. . . . .	{Double-ended needles e.g. used with pre-evacuated sampling tubes (hollow piercing element tip design <a href="#">A61B 5/150396</a> ; needle sets for catheters <a href="#">A61M 25/06</a> ; needles for bringing media into the body <a href="#">A61M 5/32</a> )}
A61B 5/15048	. . . . .	{Details of construction of proximal end}
A61B 5/150488	. . . . .	{Details of construction of shaft}
A61B 5/150496	. . . . .	{Details of construction of hub i.e. element used to attach the double-ended needle to a piercing device or sampling device}
A61B 5/150503	. . . . .	{Single-ended needles (hollow piercing element tip design <a href="#">A61B 5/150396</a> , needle sets for catheters <a href="#">A61M 25/06</a> , needles for bringing media into the body <a href="#">A61M 5/32</a> )}
A61B 5/150511	. . . . .	{Details of construction of shaft}



A61B 5/150519	. . . . .	{Details of construction of hub i.e. element used to attach the single-ended needle to a piercing device or sampling device}
A61B 5/150526	. . . . .	{Curved or bent needles}
A61B 5/150534	. . . . .	{Design of protective means for piercing elements for preventing accidental needle sticks e.g. shields, caps, protectors, axially extensible sleeves, pivotable protective sleeves}
A61B 5/150541	. . . . .	{Breakable protectors, e.g. caps, shields or sleeves, i.e. protectors separated destructively e.g. by breaking a connecting area}
A61B 5/150549	. . . . .	{Protectors removed by rotational movement e.g. torsion or screwing}
A61B 5/150557	. . . . .	{Protectors removed by bending}
A61B 5/150564	. . . . .	{Protectors removed by pulling or pushing}
A61B 5/150572	. . . . .	{Pierceable protectors, e.g. shields, caps, sleeves or films, e.g. for hygienic purposes}
A61B 5/15058	. . . . .	{Joining techniques used for protective means}
A61B 5/150587	. . . . .	{by friction fit}
A61B 5/150595	. . . . .	{by snap-lock (i.e. based on axial displacement)}
A61B 5/150603	. . . . .	{by rotation, e.g. bayonet or screw}
A61B 5/15061	. . . . .	{by material engagement e.g. welding, bonding}
A61B 5/150618	. . . . .	{Integrally moulded protectors, e.g. protectors simultaneously moulded together with a further component, e.g. a hub, of the piercing element}
A61B 5/150625	. . . . .	{by using additional parts e.g. clamping rings or collets}
A61B 5/150633	. . . . .	{Protective sleeves which are axially extensible, e.g. sleeves connected to, or integrated in, the piercing or driving device; pivotable protective sleeves}
A61B 5/150641	. . . . .	{comprising means to impede repositioning of protection sleeve from covering to uncovering position}
A61B 5/150648	. . . . .	{fully automatically triggered, i.e. the triggering of the protective sleeve does not require a deliberate action by the user such as terminating the contact with the patient's skin}
A61B 5/150656	. . . . .	{semi-automatically triggered, i.e. in which the triggering of the protective sleeve requires a deliberate action by the user e.g. manual release of spring-biased extension means}
A61B 5/150664	. . . . .	{Pivotable protective sleeves i.e. sleeves connected to, or integrated in, the piercing or driving device, and which are pivoted for covering or uncovering the piercing element}
A61B 5/150671	. . . . .	{comprising means to impede repositioning of protection sleeve from covering to uncovering position}
A61B 5/150679	. . . . .	{fully automatically triggered, i.e. the triggering of the pivotable protective sleeve does not require a deliberate action by the user such as terminating the contact with the patient's skin}
A61B 5/150687	. . . . .	{semi-automatically triggered, i.e. in which the triggering of the pivotable protective sleeve requires a deliberate action by the user such as manual release of spring-biased extension means}



A61B 5/150694	. . . . .	{Procedure for removing protection means at the time of piercing}
A61B 5/150702	. . . . .	{fully automatically removed, i.e. the removing does not require any action by the user}
A61B 5/150709	. . . . .	{semi-automatically removed, i.e. before puncturing the protection is removed by a mechanism initiated by a deliberate action by the user, such as pressing a button}
A61B 5/150717	. . . . .	{manually removed}
A61B 5/150725	. . . . .	{removal procedure linked to further actions, e.g. cocking of the piercing device, which indicate that the piercing device is used or tempered}
A61B 5/150732	. . .	{Needle holders, for instance for holding the needle by the hub, used for example with double-ended needle and pre-evacuated tube,}
A61B 5/15074	. . .	{Needle sets comprising wings, e.g. butterfly type, for ease of handling}
A61B 5/150748	. . .	{Having means for aiding positioning of the piercing device at a location where the body is to be pierced (means for aiding positioning of devices for bringing media into the body <a href="#">A61M 5/427</a> , locating blood vessels <a href="#">A61B 5/489</a> )}
A61B 5/150755	. . .	{Blood sample preparation for further analysis, e.g. by separating blood components or by mixing}
A61B 5/150763	. . .	{with identification means (identification means for surgical instruments <a href="#">A61B 19/44</a> )}
A61B 5/15077	. . . .	{characterized by physical shape}
A61B 5/150778	. . . .	{having complementary physical shapes for indexing or registration purposes}
A61B 5/150786	. . . .	{Optical identification systems e.g. bar codes, colour codes}
A61B 5/150793	. . . .	{Electrical or magnetic identification means}
A61B 5/150801	. . .	{Means for facilitating use e.g. by people with impaired vision; means for indicating when used correctly or incorrectly; means for alarming}
A61B 5/150809	. . . .	{by audible feedback}
A61B 5/150816	. . . .	{by tactile feedback e.g. vibration}
A61B 5/150824	. . . .	{by visual feedback}
A61B 5/150832	. . . .	{by topography of the surface e.g. Braille, embossed printing}
A61B 5/150839	. . .	{Aesthetic features, e.g. distraction means to prevent fears of child patients}
A61B 5/150847	. . .	{Communication to or from blood sampling device (transmitting measured data <a href="#">A61B 5/0002</a> )}
A61B 5/150854	. . . .	{long distance, e.g. between patient's home and doctor's office}
A61B 5/150862	. . . .	{intermediate range, e.g. within room or building}
A61B 5/15087	. . . .	{short range, e.g. between console and disposable (using implanted devices <a href="#">A61B 5/150877</a> )}
A61B 5/150877	. . . .	{with implanted devices}
A61B 5/150885	. . .	{Preventing re-use}
A61B 5/150893	. . . .	{by indicating if used, tampered with, unsterile or defective}
A61B 5/1509	. . . .	{by disrupting a seal e.g. puncturing a piston seal}

A61B 5/150908	. . . .	{by disconnecting components e.g. breaking or rupturing of connected parts e.g. piston and rod}
A61B 5/150916	. . . .	{by blocking components e.g. piston, driving device or fluid passageway}
A61B 5/150923	. . . .	{by means for destroying components or parts e.g. by cutting or piercing}
A61B 5/150931	. . . . .	{by including soluble parts}
A61B 5/150938	. . . . .	{by blunting or disabling needle}
A61B 5/150946	. . .	{Means for varying, regulating, indicating or limiting the speed or time of blood collection}
A61B 5/150954	. . .	{Means for the detection of operative contact with patient e.g. by temperature sensitive sensor}
A61B 5/150961	. . .	{Means for the detection of the presence or absence of a module, a component or an abnormal condition; detection of leaks}
A61B 5/150969	. .	{Low-profile devices which resemble patches or plasters, e.g. also allowing collection of blood samples for testing}
A61B 5/150977	. .	{Arrays of piercing elements for simultaneous piercing}
A61B 5/150984	. . .	{Micro-needles or micro-blades}
A61B 5/150992	. .	{Blood sampling from a fluid line external to a patient, such as a catheter line, combined with an infusion line; blood sampling from indwelling needle sets, e.g. sealable ports, luer couplings, valves (tubing connectors and couplings A61M 39/00)}
A61B 5/151	. .	{Devices} specially adapted for taking samples of capillary blood, e.g. by lancets {, needles or blades}
A61B 5/15101	. . .	{Details}
A61B 5/15103	. . . .	{Piercing procedure}
A61B 5/15105	. . . . .	{Purely manual piercing, i.e. the user pierces the skin without the assistance of any driving means or driving devices}
A61B 5/15107	. . . . .	{Piercing being assisted by a triggering mechanism}
A61B 5/15109	. . . . .	{Fully automatically triggered, i.e. the triggering does not require a deliberate action by the user, e.g. by contact with the patient's skin}
A61B 5/15111	. . . . .	{Semi-automatically triggered, e.g. at the end of the cocking procedure, for instance by biasing the main drive spring or when reaching sufficient contact pressure, the piercing device is automatically triggered without any deliberate action by the user}
A61B 5/15113	. . . . .	{Manually triggered, i.e. the triggering requires a deliberate action by the user such as pressing a drive button}
A61B 5/15115	. . . .	{Driving means for propelling the piercing element to pierce the skin, e.g. comprising mechanisms based on shape memory alloys, magnetism, solenoids, piezoelectric effect, biased elements, resilient elements, vacuum or compressed fluids}
A61B 5/15117	. . . . .	{comprising biased elements, resilient elements or a spring e.g. a helical spring, leaf spring, or elastic strap}
A61B 5/15119	. . . . .	{comprising shape memory alloys}
A61B 5/15121	. . . . .	{comprising piezos}

A61B 5/15123	. . . . .	{comprising magnets or solenoids}
A61B 5/15125	. . . . .	{comprising a vacuum or compressed fluids}
A61B 5/15126	. . . . .	{Means for controlling the lancing movement, e.g. 2D- or 3D-shaped elements, tooth-shaped elements or sliding guides}
A61B 5/15128	. . . . .	{comprising 2D- or 3D-shaped elements, e.g. cams, curved guide rails or threads (comprising tooth-shaped elements <a href="#">A61B 5/15132</a> )}
A61B 5/1513	. . . . .	{comprising linear sliding guides (comprising tooth-shaped elements <a href="#">A61B 5/15132</a> )}
A61B 5/15132	. . . . .	{comprising tooth-shaped elements, e.g. toothed wheel or rack and pinion}
A61B 5/15134	. . . . .	{Bladeless capillary blood sampling devices, i.e. devices for perforating the skin in order to obtain a blood sample but not using a blade, needle, canula, or lancet, e.g. by laser perforation, suction or pressurized fluids}
A61B 5/15136	. . . . .	{by use of radiation e.g. laser}
A61B 5/15138	. . . . .	{provided with means to ensure the protection of the user e.g. to avoid laser light entering the eyes of a user}
A61B 5/1514	. . . . .	{by use of gaseous agents, e.g. using suction aspiration or pressurized gas}
A61B 5/15142	. . . . .	{Devices intended for single use, i.e. disposable}
A61B 5/15144	. . . . .	{comprising driving means, e.g. a spring, for retracting the piercing unit into the housing}
A61B 5/15146	. . . . .	{Devices loaded with multiple lancets simultaneously, e.g. for serial firing without reloading, for example by use of stocking means. (multiple simultaneous cutting or piercing <a href="#">A61B 5/150977</a> )}
A61B 5/15148	. . . . .	{Constructional features of stocking means e.g. strip, roll, disc, cartridge, belt or tube}
A61B 5/15149	. . . . .	{Arrangement of piercing elements relative to each other}
A61B 5/15151	. . . . .	{Each piercing element being stocked in a separate isolated compartment}
A61B 5/15153	. . . . .	{Multiple piercing elements stocked in a single compartment}
A61B 5/15155	. . . . .	{Piercing elements which are specially shaped or are provided with fittings or attachments to facilitate nesting, stacking or joining together end-to-end or side-by-side}
A61B 5/15157	. . . . .	{Geometry of stocking means or arrangement of piercing elements therein}
A61B 5/15159	. . . . .	{Piercing elements stocked in or on a disc}
A61B 5/15161	. . . . .	{Characterized by propelling the piercing element in a radial direction relative to the disc}
A61B 5/15163	. . . . .	{Characterized by propelling the piercing element in an axial direction relative to the disc}
A61B 5/15165	. . . . .	{Piercing elements stocked in or on a strip}
A61B 5/15167	. . . . .	{Characterized by a folded strip}
A61B 5/15169	. . . . .	{Characterized by a rolled strip}
A61B 5/15171	. . . . .	{Characterized by propelling the piercing element perpendicular to the direction of movement of the strip}

- A61B 5/15173 . . . . . {Characterized by propelling the piercing element parallel to the direction of movement of the strip}
- A61B 5/15174 . . . . . {Piercing elements stocked in the form of a stack or pile}
- A61B 5/15176 . . . . . {Stocking means comprising cap, cover, sheath or protection for aseptic stocking}
- A61B 5/15178 . . . . . {Stocking means comprising separate compartments or units for new and for used piercing elements (separate compartments for used piercing elements in piercing devices [A61B 5/15184](#))}
- A61B 5/1518 . . . . . {Security or safety mechanism to be deactivated for forwarding next piercing element}
- A61B 5/15182 . . . . . {Means for keeping track or checking of the total number of piercing elements already used or the number of piercing elements still remaining in the stocking e.g. by check window, counter, display}
- A61B 5/15184 . . . . . {Piercing device comprising a separate compartment or unit for used piercing elements (separate compartments for used piercing elements in stocking means [A61B 5/15178](#))}
- A61B 5/15186 . . . . . {Devices loaded with a single lancet, i.e. a single lancet with or without a casing is loaded into a reusable drive device and then discarded after use; drive devices reloadable for multiple use}
- A61B 5/15188 . . . . . {Constructional features of reusable driving devices}
- A61B 5/1519 . . . . . {comprising driving means, e.g. a spring, for propelling the piercing unit}
- A61B 5/15192 . . . . . {comprising driving means, e.g. a spring, for retracting the lancet unit into the driving device housing}
- A61B 5/15194 . . . . . {fully automatically retracted, i.e. the retraction does not require a deliberate action by the user, e.g. by terminating the contact with the patient's skin}
- A61B 5/15196 . . . . . {semi-automatically retracted, i.e. in which the retraction of the piercing unit requires a deliberate action by the user such as manual release of spring-biased retraction means}
- A61B 5/15198 . . . . . {purely manually retracted}
- A61B 5/153 . . . {Devices} specially adapted for taking samples of venous or arterial blood, e.g. with syringes
- A61B 5/1535 . . . {comprising means for indicating vein or arterial entry ([A61B 5/1545](#) takes precedence)}
- A61B 5/154 . . . {Devices} using pre-evacuated means
- A61B 5/1545 . . . . {comprising means for indicating vein or arterial entry}
- A61B 5/155 . . . {Devices} specially adapted for continuous or multiple sampling, e.g. at predetermined intervals {(devices loaded with multiple lancets simultaneously [A61B 5/15146](#))}
- A61B 5/157 . . . {Devices} characterised by integrated means for measuring characteristics of blood
- A61B 5/16 . . . Devices for psychotechnics (testing capability [G09B 1/00](#) to [G09B 5/00](#)); Testing reaction times; [Devices for evaluating the psychological state]
- A61B 5/161 . . . {Flicker fusion testing (eye testing [A61B 3/00](#))}
- A61B 5/162 . . . {Testing reaction times (reaction-time training with a substantial physical effort [A63B 69/0053](#); reaction-time games [A63F 9/0096](#))}

- A61B 5/164 . . {Lie detection}
  - A61B 5/165 . . {Evaluating the state of mind, e.g. depression, anxiety}
  - A61B 5/167 . . {Personality evaluation}
  - A61B 5/168 . . {Evaluating attention deficit, hyperactivity}
  - A61B 5/18 . . for vehicle drivers {or machine operators}
  - A61B 5/20 . for measuring urological functions {restricted to the evaluation of the urinary system ([A61B 5/4375](#) takes precedence)}
  - A61B 5/201 . . {Assessing renal or kidney functions}
  - A61B 5/202 . . {Assessing bladder functions, e.g. incontinence assessment}
  - A61B 5/204 . . . {Determining bladder volume}
  - A61B 5/205 . . . {Determining bladder or urethral pressure}
  - A61B 5/207 . . {Sensing devices adapted to collect urine}
  - A61B 5/208 . . . {adapted to determine urine quantity, e.g. flow, volume}
  - A61B 5/22 . Ergometry; Measuring muscular strength or the force of a muscular blow ({exercising apparatus [A63B 21/00](#) ; measuring of work or force in general [G01L](#))
  - A61B 5/221 . . {Ergometry, e.g. by using bicycle type apparatus}
  - A61B 5/222 . . . {combined with detection or measurement of physiological parameters, e.g. heart rate}
  - A61B 5/224 . . {Measuring muscular strength}
  - A61B 5/225 . . . {of the fingers, e.g. by monitoring hand-grip force}
  - A61B 5/227 . . . {of constricting muscles, i.e. sphincters}
  - A61B 5/228 . . . {of masticatory organs, e.g. detecting dental force (measuring instruments for dentigraphy [A61C 19/04](#))}
  - A61B 5/40 . {Detecting, measuring or recording for evaluating the nervous system ([A61B 5/4806](#), [A61B 5/4821](#), [A61B 5/4824](#) take precedence)}
- WARNING**
- Group [A61B 5/40](#) and subgroups are not complete pending a reorganisation, see also groups also groups [A61B 5/00](#), [A61B 5/02](#), [A61B 5/0476](#), [A61B 5/048](#), [A61B 5/145](#), [A61B 5/16](#), [A61B 5/18](#).
- A61B 5/4005 . . {for evaluating the sensory system ([A61B 5/12](#), [A61B 5/4058](#) take precedence)}
  - A61B 5/4011 . . . {Evaluating olfaction, i.e. sense of smell}
  - A61B 5/4017 . . . {Evaluating sense of taste}
  - A61B 5/4023 . . . {Evaluating sense of balance}
  - A61B 5/4029 . . {for evaluating the peripheral nervous systems ([A61B 5/04001](#) takes precedence)}
  - A61B 5/4035 . . . {Evaluating the autonomic nervous system}
  - A61B 5/4041 . . . {Evaluating nerves condition}
  - A61B 5/4047 . . . . {afferent nerves, i.e. nerves that relay impulses to the central nervous system}
  - A61B 5/4052 . . . . {efferent nerves, i.e. nerves that relay impulses from the central nervous system}

- A61B 5/4058 . . {for evaluating the central nervous system ([A61B 5/4806](#), [A61B 5/4821](#) take precedence)}
- A61B 5/4064 . . . {Evaluating the brain ([A61B 5/031](#), [A61B 5/0476](#), [A61B 5/14553](#) take precedence)}
- A61B 5/407 . . . {Evaluating the spinal cord ([A61B 5/4896](#) takes precedence)}
- A61B 5/4076 . . {Diagnosing or monitoring particular conditions of the nervous system ([A61B 5/4821](#), [A61B 5/4824](#) take precedence)}
- A61B 5/4082 . . . {Diagnosing or monitoring movement diseases, e.g. Parkinson, Huntington or Tourette}
- A61B 5/4088 . . . {Diagnosing or monitoring cognitive diseases, e.g. Alzheimer, prion diseases or dementia}
- A61B 5/4094 . . . {Diagnosing or monitoring seizure diseases, e.g. epilepsy}
- A61B 5/41 . {Detecting, measuring or recording for evaluating the immune or lymphatic systems}

**WARNING**

Group [A61B 5/41](#) and subgroups are not complete pending a reorganisation, see also groups [A61B 5/00](#), [A61B 5/02](#), [A61B 5/04](#), [A61B 5/05](#), [A61B 5/145](#).

- A61B 5/411 . . {Detecting or monitoring allergy or intolerance reactions to an allergenic agent or substance}
- A61B 5/412 . . {Detecting or monitoring sepsis}
- A61B 5/413 . . {Monitoring transplanted tissue or organ, e.g. for possible rejection reactions after a transplant}
- A61B 5/414 . . {Evaluating particular organs or parts of the immune or lymphatic systems}
- A61B 5/415 . . . {the glands, e.g. tonsils, adenoids or thymus}
- A61B 5/416 . . . {the spleen}
- A61B 5/417 . . . {the bone marrow}
- A61B 5/418 . . . {lymph vessels, ducts or nodes}
- A61B 5/42 . {Detecting, measuring or recording for evaluating the gastrointestinal, the endocrine or the exocrine systems ([A61B 1/00](#), [A61B 5/4857](#), [A61B 5/486](#), [A61B 5/4866](#), [A61B 5/4869](#) take precedence)}
- A61B 5/4205 . . {Evaluating swallowing}
- A61B 5/4211 . . {Diagnosing or evaluating reflux}
- A61B 5/4216 . . {Diagnosing or evaluating gastrointestinal ulcers}
- A61B 5/4222 . . {Evaluating particular parts, e.g. particular organs}
- A61B 5/4227 . . . {endocrine glands, i.e. thyroid, adrenals, hypothalamic, pituitary}
- A61B 5/4233 . . . {oesophagus}
- A61B 5/4238 . . . {stomach}
- A61B 5/4244 . . . {liver}
- A61B 5/425 . . . {pancreas}
- A61B 5/4255 . . . {Intestines, colon or appendix}
- A61B 5/4261 . . {Evaluating exocrine secretion production ([A61B 3/101](#) takes precedence)}
- A61B 5/4266 . . . {sweat secretion}



A61B 5/4272	. . . {sebum secretion}
A61B 5/4277	. . . {saliva secretion}
A61B 5/4283	. . . {gastrointestinal secretions, e.g. bile production}
A61B 5/4288	. . . {mammary secretions}
A61B 5/4294	. . . {vaginal secretions}
A61B 5/43	. {Detecting, measuring or recording for evaluating the reproductive systems}
A61B 5/4306	. . {for evaluating the female reproductive systems, e.g. gynaecological evaluations}
A61B 5/4312	. . . {Breast evaluation or disorder diagnosis ( <a href="#">A61B 5/0091</a> takes precedence)}
A61B 5/4318	. . . {Evaluation of the lower reproductive system ( <a href="#">A61B 5/4343</a> takes precedence)}
A61B 5/4325	. . . . {of the uterine cavities, e.g. uterus, fallopian tubes, ovaries}
A61B 5/4331	. . . . {of the cervix ( <a href="#">A61B 5/435</a> takes precedence)}
A61B 5/4337	. . . . {of the vagina}
A61B 5/4343	. . . {Pregnancy and labour monitoring, e.g. for labour onset detection}
A61B 5/435	. . . . {Assessing cervix alteration or dilation}
A61B 5/4356	. . . . {Assessing uterine contractions ( <a href="#">A61B 5/033</a> takes precedence)}
A61B 5/4362	. . . . {Assessing foetal parameters}
A61B 5/4368	. . . {Sexual arousal evaluation}
A61B 5/4375	. . {for evaluating the male reproductive system}
A61B 5/4381	. . . {Prostate evaluation or disorder diagnosis}
A61B 5/4387	. . . {Testicles, seminal vesicles or sperm ducts evaluation}
A61B 5/4393	. . . {Sexual arousal or erectile dysfunction evaluation, e.g. tumescence evaluation}
A61B 5/44	. {Detecting, measuring or recording for evaluating the integumentary system, e.g. skin, hair or nails ( <a href="#">A61B 5/117</a> takes precedence)}
A61B 5/441	. . {Skin evaluation, e.g. for skin disorder diagnosis}
A61B 5/442	. . . {Evaluating skin mechanical properties, e.g. elasticity, hardness, texture, wrinkle assessment}
A61B 5/443	. . . {Evaluating skin constituents, e.g. elastin, melanin, water}
A61B 5/444	. . . {Evaluating skin marks, e.g. mole, nevi, tumour, scar}
A61B 5/445	. . . {Evaluating skin irritation or skin trauma, e.g. rash, eczema, wound, bed sore}
A61B 5/446	. . . {Scalp evaluation or scalp disorder diagnosis, e.g. dandruff}
A61B 5/447	. . . {specially adapted for aiding the prevention of ulcer or pressure sore development, i.e. before the ulcer or sore has developed}
A61B 5/448	. . {Hair evaluation, e.g. for hair disorder diagnosis}
A61B 5/449	. . {Nail evaluation, e.g. for nail disorder diagnosis}
A61B 5/45	. {For evaluating or diagnosing the musculoskeletal system or teeth ( <a href="#">A61B 5/1036</a> , <a href="#">A61B 5/1074</a> , <a href="#">A61B 7/006</a> take precedence)}
A61B 5/4504	. . {Bones ( <a href="#">A61B 5/4547</a> takes precedence)}



- A61B 5/4509 . . . {Bone density determination}
- A61B 5/4514 . . {Cartilage}
- A61B 5/4519 . . {Muscles ([A61B 5/0488](#), [A61B 5/224](#) take precedence)}
- A61B 5/4523 . . {Tendons}
- A61B 5/4528 . . {Joints ([A61B 5/4533](#), [A61B 5/4538](#) take precedence)}
- A61B 5/4533 . . {Ligaments}
- A61B 5/4538 . . {Evaluating a particular part of the musculoskeletal system or a particular medical condition}
- A61B 5/4542 . . . {Evaluating the mouth, e.g. the jaw}
- A61B 5/4547 . . . . {Evaluating teeth}
- A61B 5/4552 . . . . {Evaluating soft tissue within the mouth, e.g. gums or tongue}
- A61B 5/4557 . . . . {Evaluating bruxism}
- A61B 5/4561 . . . {Evaluating static posture, e.g. undesirable back curvature ([A61B 5/1116](#) takes precedence)}
- A61B 5/4566 . . . {Evaluating the spine ([A61B 5/4561](#) takes precedence)}
- A61B 5/4571 . . . {Evaluating the hip}
- A61B 5/4576 . . . {Evaluating the shoulder}
- A61B 5/458 . . . {Evaluating the elbow}
- A61B 5/4585 . . . {Evaluating the knee}
- A61B 5/459 . . . {Evaluating the wrist}
- A61B 5/4595 . . . {Evaluating the ankle}
- A61B 5/48 . . {Other medical applications}
- A61B 5/4803 . . {Speech analysis specially adapted for diagnostic purposes}
- A61B 5/4806 . . {Sleep evaluation ([A61B 5/4821](#) takes precedence; devices for inducing sleep [A61M 21/02](#))}
- A61B 5/4809 . . . {Sleep detection, i.e. determining whether a subject is asleep or not}
- A61B 5/4812 . . . {Detecting sleep stages or cycles}
- A61B 5/4815 . . . {Sleep quality}
- A61B 5/4818 . . . {Sleep apnoea}
- A61B 5/4821 . . {Determining level or depth of anaesthesia ([A61B 5/1106](#) takes precedence)}
- A61B 5/4824 . . {Touch or pain perception evaluation ([A61B 5/4821](#) takes precedence)}
- A61B 5/4827 . . . {assessing touch sensitivity, e.g. for evaluation of pain threshold}
- A61B 5/483 . . . . {by thermal stimulation}
- A61B 5/4833 . . {Assessment of subject's compliance to treatment}
- A61B 5/4836 . . {Diagnosis combined with treatment in closed-loop systems or methods}
- A61B 5/4839 . . . {combined with drug delivery}
- A61B 5/4842 . . {Monitoring progression or stage of a disease}
- A61B 5/4845 . . {Toxicology, e.g. by detection of alcohol, drug or toxic products ([A61B 5/4848](#) takes precedence)}
- A61B 5/4848 . . {Monitoring or testing the effects of treatment, e.g. of medication}

- A61B 5/4851 . . {Prosthesis assessment or monitoring ([A61B 5/04888](#) takes precedence)}
- A61B 5/4854 . . {Diagnosis based on concepts of traditional oriental medicine}
- A61B 5/4857 . . {Indicating the phase of biorhythm (clocks or watches with indicators for biological cycles [G04B 19/264](#))}
- A61B 5/486 . . {Bio-feedback ([A61B 5/0482](#) takes precedence)}
- A61B 5/4863 . . {Measuring or inducing nystagmus}
- A61B 5/4866 . . {Evaluating metabolism ([A61B 5/083](#) takes precedence)}
- A61B 5/4869 . . {Determining body composition}
- A61B 5/4872 . . . {Body fat}
- A61B 5/4875 . . . {Hydration status, fluid retention of the body}
- A61B 5/4878 . . . . {Evaluating oedema}
- A61B 5/4881 . . . {Determining interstitial fluid distribution or content within body tissue (measuring analytes in interstitial fluid in-vivo [A61B 5/1451](#))}
- A61B 5/4884 . . {inducing physiological or psychological stress, e.g. applications for stress testing}
- A61B 5/4887 . . {Locating particular structures in or on the body}
- A61B 5/489 . . . {Blood vessels}
- A61B 5/4893 . . . {Nerves}
- A61B 5/4896 . . . {Epidural space}
- A61B 5/68 . {Arrangements of detecting, measuring or recording means, e.g. sensors, in relation to patient}
- A61B 5/6801 . . {specially adapted to be attached to or worn on the body surface}
- A61B 5/6802 . . . {Sensor mounted on worn items}
- A61B 5/6803 . . . . {Head-worn items, e.g. helmets, masks, headphones or goggles}
- A61B 5/6804 . . . . {Garments; Clothes}
- A61B 5/6805 . . . . . {Vests}
- A61B 5/6806 . . . . . {Gloves}
- A61B 5/6807 . . . . . {Footwear}
- A61B 5/6808 . . . . {Diapers}
- A61B 5/681 . . . . {Wristwatch-type devices}
- A61B 5/6811 . . . . {External prosthesis}
- A61B 5/6812 . . . . {Orthopaedic devices}
- A61B 5/6813 . . . {Specially adapted to be attached to a specific body part ([A61B 5/6802](#) takes precedence)}
- A61B 5/6814 . . . . {Head}
- A61B 5/6815 . . . . . {Ear}
- A61B 5/6816 . . . . . . {Ear lobe}
- A61B 5/6817 . . . . . . {Ear canal}
- A61B 5/6819 . . . . . {Nose}
- A61B 5/682 . . . . . {Mouth, e.g., oral cavity; tongue; Lips; Teeth}
- A61B 5/6821 . . . . . {Eye}

A61B 5/6822	. . . . {Neck}
A61B 5/6823	. . . . {Trunk, e.g., chest, back, abdomen, hip}
A61B 5/6824	. . . . {Arm or wrist}
A61B 5/6825	. . . . {Hand}
A61B 5/6826	. . . . . {Finger}
A61B 5/6828	. . . . {Leg}
A61B 5/6829	. . . . {Foot or ankle}
A61B 5/683	. . . {Means for maintaining contact with the body ( <a href="#">A61B 5/6802</a> takes precedence)}
A61B 5/6831	. . . . {Straps, bands or harnesses}
A61B 5/6832	. . . . {using adhesives ( <a href="#">A61B 5/04087</a> takes precedence)}
A61B 5/6833	. . . . . {Adhesive patches}
A61B 5/6834	. . . . {using vacuum}
A61B 5/6835	. . . . {Supports or holders, e.g., articulated arms}
A61B 5/6837	. . . . {Sutures}
A61B 5/6838	. . . . {Clamps or clips}
A61B 5/6839	. . . . {Anchoring means, e.g. barbs}
A61B 5/684	. . . {Indicating the position of the sensor on the body}
A61B 5/6841	. . . . {by using templates}
A61B 5/6842	. . . . {by marking the skin}
A61B 5/6843	. . . {Monitoring or controlling sensor contact pressure}
A61B 5/6844	. . . {Monitoring or controlling distance between sensor and tissue}
A61B 5/6846	. . {specially adapted to be brought in contact with an internal body part, i.e. invasive}
A61B 5/6847	. . . {mounted on an invasive device}
A61B 5/6848	. . . . {Needles}
A61B 5/6849	. . . . . {in combination with a needle set}
A61B 5/685	. . . . {Microneedles}
A61B 5/6851	. . . . {Guide wires}
A61B 5/6852	. . . . {Catheters}
A61B 5/6853	. . . . . {with a balloon}
A61B 5/6855	. . . . . {with a distal curved tip}
A61B 5/6856	. . . . . {with a distal loop}
A61B 5/6857	. . . . . {with a distal pigtail shape}
A61B 5/6858	. . . . . {with a distal basket, e.g. expandable basket}
A61B 5/6859	. . . . . {with multiple distal splines}
A61B 5/686	. . . . {Permanently implanted devices, e.g. pacemakers, other stimulators, biochips ( <a href="#">A61B 5/6861</a> takes precedence)}
A61B 5/6861	. . . . {Capsules, e.g. for swallowing or implanting}
A61B 5/6862	. . . . {Stents}
A61B 5/6864	. . . . {Burr holes}

A61B 5/6865	. . . . {Access ports}
A61B 5/6866	. . . . {Extracorporeal blood circuits, e.g. dialysis circuits}
A61B 5/6867	. . . {specially adapted to be attached or implanted in a specific body part ( <a href="#">A61B 5/6847</a> takes precedence)}
A61B 5/6868	. . . . {Brain}
A61B 5/6869	. . . . {Heart}
A61B 5/687	. . . . {Oesophagus}
A61B 5/6871	. . . . {Stomach}
A61B 5/6873	. . . . {Intestine}
A61B 5/6874	. . . . {Bladder}
A61B 5/6875	. . . . {Uterus}
A61B 5/6876	. . . . {Blood vessel}
A61B 5/6877	. . . . {Nerve}
A61B 5/6878	. . . . {Bone}
A61B 5/6879	. . . {Means for maintaining contact with the body ( <a href="#">A61B 5/6847</a> takes precedence)}
A61B 5/688	. . . . {using adhesives}
A61B 5/6882	. . . . {Anchoring means}
A61B 5/6883	. . . . {Sutures}
A61B 5/6884	. . . . {Clamps or clips}
A61B 5/6885	. . . {Monitoring or controlling sensor contact pressure}
A61B 5/6886	. . . {Monitoring or controlling distance between sensor and tissue}
A61B 5/6887	. . {mounted on external non-worn devices, e.g. non-medical devices}
A61B 5/6888	. . . {Cabins}
A61B 5/6889	. . . {Rooms}
A61B 5/6891	. . . {Furniture}
A61B 5/6892	. . . {Mats}
A61B 5/6893	. . . {Cars}
A61B 5/6894	. . . {Wheel chairs}
A61B 5/6895	. . . {Sport equipment}
A61B 5/6896	. . . {Toys}
A61B 5/6897	. . . {Computer input devices, e.g. mice or keyboards}
A61B 5/6898	. . . {Portable consumer electronic devices, e.g. music players, telephones, tablet computers}
A61B 5/70	. {Means for positioning the patient in relation to the detecting, measuring or recording means}
A61B 5/702	. . {Posture restraints}
A61B 5/704	. . {Tables}
A61B 5/706	. . {Indicia not located on the patient, e.g. floor marking}
A61B 5/708	. . {Breast positioning means}

- A61B 5/72
  - {Signal processing specially adapted for physiological signals or for diagnostic purposes (algorithms for computer assisted diagnosis [G06F 19/34](#); pattern recognition [G06K 9/00](#))}
- A61B 5/7203
  - • {for noise prevention, reduction or removal}
- A61B 5/7207
  - • • {of noise induced by motion artifacts}
- A61B 5/721
  - • • • {using a separate sensor to detect motion or using motion information derived from signals other than the physiological signal to be measured}
- A61B 5/7214
  - • • • {using signal cancellation, e.g. based on input of two identical physiological sensors spaced apart, or based on two signals derived from the same sensor, for different optical wavelengths}
- A61B 5/7217
  - • • {of noise originating from a therapeutic or surgical apparatus, e.g. from a pacemaker}
- A61B 5/7221
  - • {Determining signal validity, reliability or quality ([A61B 5/7207](#) and [A61B 5/7217](#) take precedence)}
- A61B 5/7225
  - • {Details of analog processing, e.g. isolation amplifier, gain or sensitivity adjustment, filtering, baseline or drift compensation ([A61B 5/04004](#), [A61B 5/04012](#), [A61B 5/0428](#) take precedence; transformers for specific applications [H01F 38/00](#); amplifiers [H03F](#))}
- A61B 5/7228
  - • {Signal modulation applied to the input signal sent to patient or subject; demodulation to recover the physiological signal ([modulation H03C](#))}
- A61B 5/7232
  - • {involving compression of the physiological signal, e.g. to extend the signal recording period}
- A61B 5/7235
  - • {Details of waveform analysis ([A61B 5/0452](#) takes precedence)}
- A61B 5/7239
  - • • {using differentiation including higher order derivatives}
- A61B 5/7242
  - • • {using integration}
- A61B 5/7246
  - • • {using correlation, e.g. template matching or determination of similarity}
- A61B 5/725
  - • • {using specific filters therefor, e.g. Kalman or adaptive filters ([A61B 5/04014](#) and [A61B 5/04017](#) take precedence)}
- A61B 5/7253
  - • • {characterised by using transforms}
- A61B 5/7257
  - • • • {using Fourier transforms}
- A61B 5/726
  - • • • {using Wavelet transforms}
- A61B 5/7264
  - • • {Classification of physiological signals or data, e.g. using neural networks, statistical classifiers, expert systems or fuzzy systems ([neural networks per se G01N 3/00](#); [expert systems per se G06N 5/00](#))}
- A61B 5/7267
  - • • • {involving training the classification device}
- A61B 5/7271
  - • {Specific aspects of physiological measurement analysis ([A61B 5/04012](#), [A61B 5/0452](#) and [A61B 5/048](#) take precedence)}
- A61B 5/7275
  - • • {Determining trends in physiological measurement data}; Predicting development of a medical condition based on physiological measurements, e.g. determining a risk factor
- A61B 5/7278
  - • • {Artificial waveform generation or derivation, e.g. synthesising signals from measured signals ([A61B 5/04028](#) takes precedence)}
- A61B 5/7282
  - • • {Event detection, e.g. detecting unique waveforms indicative of a medical condition ([A61B 5/4094](#), [A61B 5/4818](#), [A61B 5/0452](#), [A61B 5/0823](#) take precedence)}

- A61B 5/7285 . . . {for synchronising or triggering a physiological measurement or image acquisition with a physiological event or waveform, e.g. an ECG signal ([A61B 6/5205](#), [A61B 6/541](#), [A61B 8/5207](#), [A61B 8/543](#) take precedence)}
- A61B 5/7289 . . . . {Retrospective gating, i.e. associating measured signals or images with a physiological event after the actual measurement or image acquisition, e.g. by simultaneously recording an additional physiological signal during the measurement or image acquisition}
- A61B 5/7292 . . . . {Prospective gating, i.e. predicting the occurrence of a physiological event for use as a synchronisation signal}
- A61B 5/7296 . . . {for compensation of signal variation due to stress unintentionally induced in the patient, e.g. due to the stress of the medical environment or examination (deliberately inducing physiological or psychological stress [A61B 5/4884](#))}
- A61B 5/74 . {Details of notification to user or communication with user or patient (indicating measured values [G01D 7/00](#)); user input means (input or output arrangements for computers [G06F 3/00](#))}

**WARNING**

Group [A61B 5/74](#) and subgroups are not complete pending a reorganisation; see also other subgroups of [A61B 5/00](#)

- A61B 5/7405 . . {using sound}
- A61B 5/741 . . . {using synthesised speech}
- A61B 5/7415 . . . {Sound rendering of measured values, e.g. by pitch or volume variation ([A61B 5/741](#) takes precedence)}
- A61B 5/742 . . {using visual displays ([A61B 5/044](#) takes precedence)}
- A61B 5/7425 . . . {Displaying combinations of multiple images regardless of image source, e.g. displaying a reference anatomical image with a live image (geometric transforms for image registration [G06T 3/0068](#); enhancement using image fusion [G06T 5/50](#); algorithms for registration of images [G06T 7/0024](#))}
- A61B 5/743 . . . {Displaying an image simultaneously with additional graphical information, e.g. symbols, charts, function plots}
- A61B 5/7435 . . . {Displaying user selection data, e.g. icons in a graphical user interface}
- A61B 5/744 . . . {Displaying an avatar, e.g. an animated cartoon character}
- A61B 5/7445 . . . {Display arrangements, e.g. multiple display units}
- A61B 5/745 . . . {using a holographic display}
- A61B 5/7455 . . {characterised by tactile indication, e.g. vibration or electrical stimulation}
- A61B 5/746 . . {Alarms related to a physiological condition, e.g. details of setting alarm thresholds or avoiding false alarms (alarms per se [G08B](#))}
- A61B 5/7465 . . {Arrangements for interactive communication between patient and care services, e.g. by using a telephone network (telemetry of measured physiological signal [A61B 5/0002](#))}
- A61B 5/747 . . . {in case of emergency, i.e. alerting emergency services}
- A61B 5/7475 . . {User input or interface means, e.g. keyboard, pointing device, joystick}
- A61B 5/748 . . . {Selection of a region of interest, e.g. using a graphics tablet}
- A61B 5/7485 . . . . {Automatic selection of region of interest}

A61B 5/749 . . . {Voice-controlled interfaces}

A61B 5/7495 . . . {using a reader or scanner device, e.g. barcode scanner}

## A61B 6/00

**Apparatus for radiation diagnosis, e.g. combined with radiation therapy equipment** (analysis of materials using radiation [G01N 23/00](#), detecting hidden objects by radiation [G01V 5/0008](#), radiodiagnostic or X-ray contrast preparations [A61K 49/00](#); radiation therapy per se [A61N 5/00](#); instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting [G01T 1/161](#); apparatus for taking X-ray photographs [G03B 42/02](#); X-ray photographic processes [G03C 5/16](#); irradiation devices [G21K](#); X-ray apparatus or circuits therefor [H05G 1/00](#))

A61B 6/02 . Devices for diagnosis sequentially in different planes; Stereoscopic radiation diagnosis

A61B 6/022 . . {Stereoscopic imaging}

A61B 6/025 . . {Tomosynthesis}

A61B 6/027 . . {characterised by the use of a particular data acquisition trajectory, e.g. helical or spiral}

A61B 6/03 . . Computerised tomographs ({diagnosis by magnetic resonance imaging [A61B 5/055](#); echo-tomography [A61B 8/14](#); {medical informatics [G06F 19/30](#)})

A61B 6/032 . . . {Transmission computed tomography [CT]}

A61B 6/035 . . . . {Mechanical aspects of CT}

A61B 6/037 . . . {Emission tomography (detector details for PET [G01T 1/2985](#), detector details for SPECT [G01T 1/1644](#))}

A61B 6/04 . Positioning of patients; Tilttable beds or the like (operating tables [A61G 13/00](#); operating chairs [A61G 15/00](#))

A61B 6/0407 . . {Tables or beds}

A61B 6/0414 . . . {Tables or beds with compression means}

A61B 6/0421 . . . {Tables or beds with immobilising means}

A61B 6/0428 . . . . {Patient cradles}

A61B 6/0435 . . . {Tables or beds with means for imaging suspended breasts}

A61B 6/0442 . . . {Tables or beds made from non-metallic materials}

A61B 6/045 . . . {Tables or beds with heating or cooling means}

A61B 6/0457 . . {Servo-controlled positioning}

A61B 6/0464 . . {Supports mounted to ceiling}

A61B 6/0471 . . {Endless-band supports}

A61B 6/0478 . . {Patient positioning chairs}

A61B 6/0485 . . {Inflatable rests for lifting of patients}

A61B 6/0492 . . {using markers or indicia for aiding patient positioning}

A61B 6/06 . Diaphragms {for particular diagnostic applications, e.g. tomography, i.e. not of general applicability (diaphragms, e.g. variable, or collimators in general [G21K 1/02](#))}

A61B 6/08 . Auxiliary means for directing the radiation beam to a particular spot, e.g. using light beams



- A61B 6/10
  - Application or adaptation of safety means ([protection against dangerous radiation in general G21F](#))
- A61B 6/102
  - • {Protection against mechanical damage, e.g. anti-collision devices}
- A61B 6/105
  - • • {Braking or locking devices}
- A61B 6/107
  - • {Protection against radiation, e.g. shielding ([techniques for handling radiation not otherwise provided for G21K](#))}
- A61B 6/12
  - Devices for detecting or locating foreign bodies ([A61B 6/02](#) takes precedence; [radio-opaque markers A61B 19/54](#))
- A61B 6/14
  - Applications or adaptations for dentistry
- A61B 6/145
  - • {by intraoral means (X-ray tubes having a small cross-section to facilitate introduction into small cavities [H01J 35/32](#))}
- A61B 6/40
  - {with arrangements for generating radiation specially adapted for radiation diagnosis (X-ray tubes or details thereof [H01J 35/00](#))}
- A61B 6/4007
  - • {characterised by using a plurality of source units (circuit arrangements driving apparatuses comprising more than one X ray tube [H05G 1/70](#))}
- A61B 6/4014
  - • • {arranged in multiple source-detector units}
- A61B 6/4021
  - • {involving movement of the focal spot}
- A61B 6/4028
  - • • {resulting in acquisition of views from substantially different positions, e.g. EBCT}
- A61B 6/4035
  - • {the source being combined with a filter or grating ([filters for radiation per se G21K 1/10](#))}

**WARNING**

Groups [A61B 6/4035](#) and [A61B 6/4042](#) are not complete pending a reorganisation; see also [A61B 6/06](#)

- A61B 6/4042
  - • • {K-edge filters}
- A61B 6/405
  - • {Source units adapted to modify characteristics of the beam during the data acquisition process ([A61B 6/4021](#), [A61B 6/4035](#) take precedence; arrangements changing the time structure of an already generated radiation beam [G21K 1/043](#))}
- A61B 6/4057
  - • {by using a source unit in the interior of the body ([A61B 6/037](#) takes precedence; X-ray tubes with small cross-section [H01J 35/32](#))}
- A61B 6/4064
  - • {adapted for producing a particular type of beam}
- A61B 6/4071
  - • • {Pencil beams}
- A61B 6/4078
  - • • {Fan-beams}
- A61B 6/4085
  - • • {Cone-beams}
- A61B 6/4092
  - • • {for producing synchrotron radiation}
- A61B 6/42
  - {with arrangements for detecting radiation specially adapted for radiation diagnosis ([details of radiation detection G01T 1/00](#))}
- A61B 6/4208
  - • {characterised by using a particular type of detector}
- A61B 6/4216
  - • • {using storage phosphor screens ([details of stimuable phosphor sheets G01T 1/2012](#))}
- A61B 6/4225
  - • • {using image intensifiers}
- A61B 6/4233
  - • • {using matrix detectors ([for semiconductor radiation detectors G01T 1/24](#), [G01T 1/2928](#))}

- A61B 6/4241 . . . {using energy resolving detectors, e.g. photon counting ([detectors for nuclear medicine G01T 1/16, G01T 1/29](#))}
- A61B 6/425 . . . {using detectors specifically adapted to be used in the interior of the body ([detector details for in vivo counting G01T 1/161](#))}
- A61B 6/4258 . . . {for detecting non x-ray radiation, e.g. gamma radiation ([A61B 6/037 takes precedence](#))}
- A61B 6/4266 . . {characterised by using a plurality of detector units ([A61B 6/4014 takes precedence](#))}
- A61B 6/4275 . . {using a detector unit almost surrounding the patient , e.g. more than 180°}
- A61B 6/4283 . . {characterised by a detector unit being housed in a cassette}
- A61B 6/4291 . . {the detector being combined with a grid or grating}
- A61B 6/44 . {Constructional features of the device for radiation diagnosis}
- A61B 6/4405 . . {the device being mobile or portable, e.g. mounted on a trolley or handheld}
- A61B 6/4411 . . {the device being modular}
- A61B 6/4417 . . {related to combined acquisition of different diagnostic modalities}
- A61B 6/4423 . . {related to hygiene or sterilisation}
- A61B 6/4429 . . {related to the mounting of source units and detector units ([A61B 6/02 takes precedence](#))}
- A61B 6/4435 . . . {the source unit and the detector unit being coupled by a rigid structure}
- A61B 6/4441 . . . . {the rigid structure being a C-arm or U-arm}
- A61B 6/4447 . . . . {Tiltable gantries}
- A61B 6/4452 . . . {the source unit and the detector unit being able to move relative to each other}
- A61B 6/4458 . . . {the source unit or the detector unit being attached to robotic arms}
- A61B 6/4464 . . . {the source unit or the detector unit being mounted to ceiling}
- A61B 6/447 . . . {the source unit or the detector unit being mounted to counterpoise or springs}
- A61B 6/4476 . . {related to servo controlled movement of the source unit}
- A61B 6/4482 . . . {involving power assist circuits}
- A61B 6/4488 . . {Means for cooling ([A61B 6/045 takes precedence](#))}
- A61B 6/4494 . . {Means for identifying the diagnostic device}
- A61B 6/46 . {with special arrangements for interfacing with the operator or the patient}
- A61B 6/461 . . {Displaying means of special interest}
- A61B 6/462 . . . {characterised by constructional features of the display}
- A61B 6/463 . . . {characterised by displaying multiple images or images and diagnostic data on one display}
- A61B 6/464 . . . {involving a plurality of displays}
- A61B 6/465 . . . {adapted to display user selection data, e.g. icons or menus}
- A61B 6/466 . . . {adapted to display 3D data ([3D image rendering G06T 15/00; manipulating 3D models for computer graphics G06T 19/00](#))}
- A61B 6/467 . . {characterised by special input means}
- A61B 6/468 . . . {allowing annotation or message recording}

- A61B 6/469 . . . {for selecting a region of interest [ROI]}
- A61B 6/48 . {Diagnostic techniques ([A61B 6/022](#), [A61B 6/032](#), [A61B 6/037](#) take precedence)}
- A61B 6/481 . . {involving the use of contrast agents}
- A61B 6/482 . . {involving multiple energy imaging}
- A61B 6/483 . . {involving scattered radiation}
- A61B 6/484 . . {involving phase contrast X-ray imaging}
- A61B 6/485 . . {involving fluorescence X-ray imaging}
- A61B 6/486 . . {involving generating temporal series of image data}
- A61B 6/487 . . . {involving fluoroscopy}
- A61B 6/488 . . {involving pre-scan acquisition}
- A61B 6/50 . {Clinical applications ([dentistry A61B 6/14](#) takes precedence)}
- A61B 6/501 . . {involving diagnosis of head, e.g. neuroimaging, craniography}
- A61B 6/502 . . {involving diagnosis of breast, i.e. mammography}
- A61B 6/503 . . {involving diagnosis of heart}

**WARNING**

Group [A61B 6/503](#) is not complete pending a reorganisation; see [A61B 6/504](#)

- A61B 6/504 . . {involving diagnosis of blood vessels, e.g. by angiography}
- A61B 6/505 . . {involving diagnosis of bone}
- A61B 6/506 . . {involving diagnosis of nerves}

**WARNING**

Group [A61B 6/506](#) is not complete pending a reorganisation; see [A61B 6/50](#)

- A61B 6/507 . . {involving determination of haemodynamic parameters, e.g. perfusion CT}

**WARNING**

Group [A61B 6/507](#) is not complete pending a reorganisation; see [A61B 6/50](#)

- A61B 6/508 . . {for non-human patients}
- A61B 6/52 . {Devices using data or image processing specially adapted for radiation diagnosis ([image processing per se G06T](#))}

**WARNING**

Groups of [A61B 6/52](#) are not complete pending a reorganisation; see [A61B 6/00](#), [A61B 6/50](#), [A61B6/00F](#), [A61B 6/03](#), [A61B 6/032](#) and [A61B 6/04](#)

- A61B 6/5205 . . {involving processing of raw data to produce diagnostic data}
- A61B 6/5211 . . {involving processing of medical diagnostic data}
- A61B 6/5217 . . . {extracting a diagnostic or physiological parameter from medical diagnostic data ([details of algorithms to analyse biomedical images G06T 7/0012](#); [algorithms for computer assisted diagnosis G06F 19/34](#))}

- A61B 6/5223 . . . {generating planar views from image data, e.g. extracting a coronal view from a 3D image}
- A61B 6/5229 . . . {combining image data of a patient, e.g. combining a functional image with an anatomical image ([details of algorithms for image registration G06T 7/0024](#))}
- A61B 6/5235 . . . . {combining images from the same or different radiation imaging techniques, e.g. PET and CT}
- A61B 6/5241 . . . . . {combining overlapping radiation images, e.g. by stitching}
- A61B 6/5247 . . . . {combining images from different diagnostic modalities, e.g. X-ray and ultrasound}
- A61B 6/5252 . . . {removing objects from field of view, e.g. removing patient table from a CT image}
- A61B 6/5258 . . {involving detection or reduction of artifacts or noise ([details of algorithms for image enhancement G06T 7/0022](#))}
- A61B 6/5264 . . . {due to motion}
- A61B 6/527 . . . . {using data from a motion artifact sensor ([A61B 6/5276 takes precedence](#))}
- A61B 6/5276 . . . . {involving measuring table sag}
- A61B 6/5282 . . . {due to scatter}
- A61B 6/5288 . . {involving retrospective matching to a physiological signal}
- A61B 6/5294 . . {involving using additional data, e.g. patient information, image labeling, acquisition parameters}
- A61B 6/54 . {Control of devices for radiation diagnosis}
- A61B 6/541 . . {involving acquisition triggered by a physiological signal}
- A61B 6/542 . . {involving control of exposure}
- A61B 6/544 . . . {dependent on patient size}
- A61B 6/545 . . {involving automatic set-up of acquisition parameters}
- A61B 6/547 . . {involving tracking of position of the device or parts of the device ([using an image of a phantom A61B 6/584](#))}
- A61B 6/548 . . {Remote control of radiation diagnosis devices}
- A61B 6/56 . {Details of data transmission or power supply, e.g. use of slip rings}
- A61B 6/563 . . {involving image data transmission via a network ([transmission or management of patient information G06F 19/32](#))}
- A61B 6/566 . . {involving communication between imaging systems}
- A61B 6/58 . {Testing, adjusting or calibrating devices for radiation diagnosis}
- A61B 6/581 . . {Remote testing of the device}
- A61B 6/582 . . {Calibration}
- A61B 6/583 . . . {using calibration phantoms ([models for medical purposes G09B 23/28](#))}
- A61B 6/584 . . . . {determining position of components of the device using images of the phantom}
- A61B 6/585 . . . {Calibration of detector units}
- A61B 6/586 . . {Detection of faults or malfunction of the device}
- A61B 6/587 . . {Alignment of source unit to detector unit}

A61B 6/588 . . {Setting distance between source unit and detector unit}

A61B 6/589 . . {Setting distance between source unit and patient}

## A61B 7/00

### Instruments for auscultation

A61B 7/001 . {Detecting cranial noise, e.g. caused by aneurism}

A61B 7/003 . {Detecting lung or respiration noise}

A61B 7/005 . {Detecting noise caused by implants, e.g. cardiac valves}

A61B 7/006 . {Detecting skeletal, cartilage or muscle noise ([A61B 7/003](#) and [A61B 7/008](#) take precedence)}

A61B 7/008 . {Detecting noise of gastric tract, e.g. caused by voiding}

A61B 7/02 . Stethoscopes {(acoustic details thereof [G10K 11/00](#))}

A61B 7/023 . . {for introduction into the body, e.g. into the oesophagus (oesophageal ECG probes [A61B 5/0421](#))}

A61B 7/026 . . {comprising more than one sound collector}

A61B 7/04 . . Electric stethoscopes (microphones, acoustic transducers therefor [H04R](#))

A61B 7/045 . . . {Detection of Korotkoff sounds ([A61B 5/0225](#) takes precedence; measuring blood pressure [A61B 5/021](#))}

## A61B 8/00

### Diagnosis using ultrasonic, sonic or infrasonic waves (imaging of objects using sonar [G01S 15/00](#))

A61B 8/02 . Measuring pulse or heart rate

A61B 8/04 . Measuring blood pressure

A61B 8/06 . Measuring blood flow (measuring volume flow in general [G01F](#), e.g. [G01F 1/66](#), [G01F 1/72](#); measuring speed of fluids in general [G01P 5/00](#))

A61B 8/065 . . {to determine blood output from the heart (in general [A61B 5/029](#))}

A61B 8/08 . Detecting organic movements or changes, e.g. tumours, cysts, swellings ([A61B 8/02](#) to [A61B 8/06](#) take precedence)

A61B 8/0808 . . {for diagnosis of the brain}

A61B 8/0816 . . . {using echo-encephalography}

A61B 8/0825 . . {for diagnosis of the breast, e.g. mammography}

A61B 8/0833 . . {involving detecting or locating foreign bodies or organic structures}

A61B 8/0841 . . . {for locating instruments}

A61B 8/085 . . . {for locating body or organic structures, e.g. tumours, calculi, blood vessels, nodules}

A61B 8/0858 . . {involving measuring tissue layers, e.g. skin, interfaces}

A61B 8/0866 . . {involving foetal diagnosis; pre-natal or peri-natal diagnosis of the baby}

A61B 8/0875 . . {for diagnosis of bone ([A61B 5/4504](#) takes precedence)}

A61B 8/0883 . . {for diagnosis of the heart}

A61B 8/0891 . . {for diagnosis of blood vessels}

A61B 8/10 . Eye inspection

A61B 8/12 . In body cavities or body tracts, e.g. by using catheters (catheters per se [A61M 25/00](#))

A61B 8/13 . Tomography ([A61B 8/10](#), [A61B 8/12](#) take precedence; tomography for radiation diagnosis [A61B 6/02](#))

A61B 8/14 . . Echo-tomography

A61B 8/145 . . . {characterised by scanning multiple planes}

A61B 8/15 . . Transmission-tomography

A61B 8/40 . {Positioning of patients, e.g. means for holding or immobilising parts of the patient's body}

#### **WARNING**

This subgroup is not complete pending a reorganisation, see [A61B 8/00](#)

A61B 8/403 . . {using compression means}

A61B 8/406 . . {using means for diagnosing suspended breasts}

A61B 8/42 . {Details of probe positioning or probe attachment to the patient}

#### **WARNING**

This subgroup is not complete pending a reorganisation, see [A61B 8/00](#)

A61B 8/4209 . . {by using holders, e.g. positioning frames}

A61B 8/4218 . . . {characterised by articulated arms}

A61B 8/4227 . . . {characterised by straps, belts, cuffs or braces}

A61B 8/4236 . . . {characterised by adhesive patches}

A61B 8/4245 . . {involving determining the position of the probe, e.g. with respect to an external reference frame or to the patient}

A61B 8/4254 . . . {using sensors mounted on the probe}

A61B 8/4263 . . . {using sensors not mounted on the probe, e.g. mounted on an external reference frame}

A61B 8/4272 . . {involving the acoustic interface between the transducer and the tissue}

A61B 8/4281 . . . {characterised by sound-transmitting media or devices for coupling the transducer to the tissue}

A61B 8/429 . . . {characterised by determining or monitoring the contact between the transducer and the tissue}

A61B 8/44 . {Constructional features of the ultrasonic, sonic or infrasonic diagnostic device}

#### **WARNING**

This subgroup is not complete pending a reorganisation, see [A61B 8/00](#)

A61B 8/4405 . . {Device being mounted on a trolley}

A61B 8/4411 . . {Device being modular}

A61B 8/4416 . . {related to combined acquisition of different diagnostic modalities, e.g. combination of ultrasound and X-ray acquisitions}

A61B 8/4422 . . {related to hygiene or sterilisation}

A61B 8/4427 . . {Device being portable or laptop-like}

A61B 8/4433 . . {involving a docking unit}

A61B 8/4438 . . {Means for identifying the diagnostic device, e.g. barcodes}

A61B 8/4444 . . {related to the probe}

- A61B 8/445
  - . . . {Details of catheter construction}
- WARNING**
- This subgroup is not complete pending a reorganisation, see [A61B 8/12](#)
- A61B 8/4455
  - . . . {Features of the external shape of the probe, e.g. ergonomic aspects}
- A61B 8/4461
  - . . . {Features of the scanning mechanism, e.g. for moving the transducer within the housing of the probe}
- A61B 8/4466
  - . . . . {involving deflection of the probe}
- A61B 8/4472
  - . . . {Wireless probes}
- A61B 8/4477
  - . . {using several separate ultrasound transducers or probes}
- A61B 8/4483
  - . . {characterised by features of the ultrasound transducer}
- A61B 8/4488
  - . . . {the transducer being a phased array}
- A61B 8/4494
  - . . . {characterised by the arrangement of the transducer elements (devices for short-range imaging using particular transducer elements arrangements under [G01S 15/8909](#); arrangements of transducers in generation of mechanical vibrations of infrasonic, sonic or ultrasonic frequency [B06B 1/0607](#))}
- A61B 8/46
  - . {Ultrasonic, sonic or infrasonic diagnostic devices with special arrangements for interfacing with the operator or the patient}
- WARNING**
- This subgroup is not complete pending a reorganisation, see [A61B 8/00](#)
- A61B 8/461
  - . . {Displaying means of special interest}
- A61B 8/462
  - . . . {characterised by constructional features of the display}
- A61B 8/463
  - . . . {characterised by displaying multiple images or images and diagnostic data on one display (composite display in devices for short-range imaging with acoustic waves [G01S 7/52074](#))}
- A61B 8/464
  - . . . {involving a plurality of displays}
- A61B 8/465
  - . . . {adapted to display user selection data e.g. icons or menus}
- A61B 8/466
  - . . . {adapted to display 3D data (3D imaging and stereoscopic displays in devices for short-range imaging with acoustic waves [G01S 15/8993](#) and [G01S 7/52068](#), respectively; 3D image rendering [G06T 15/00](#); manipulating 3D models for computer graphics [G06T 19/00](#))}
- A61B 8/467
  - . . {characterised by special input means}
- A61B 8/468
  - . . . {allowing annotation or message recording}
- A61B 8/469
  - . . . {for selection of a region of interest}
- A61B 8/48
  - . {Diagnostic techniques ([A61B 8/13](#) takes precedence)}
- WARNING**
- This subgroup is not complete pending a reorganisation, see [A61B 8/08](#)
- A61B 8/481
  - . . {involving the use of contrast agent, e.g. micro-bubbles introduced into the bloodstream (analysis of echo signal exploiting properties of a contrast enhancer in devices for short-range imaging with acoustic waves [G01S 7/52039](#))}



- A61B 8/483 . . {involving the acquisition of a 3D volume of data}
- A61B 8/485 . . {involving measuring strain or elastic properties}
- A61B 8/486 . . {involving arbitrary m-mode}
- A61B 8/488 . . {involving Doppler signals}
- A61B 8/52 . {Devices using data or image processing specially adapted for diagnosis using ultrasonic, sonic or infrasonic waves (image processing per se [G06T](#))}

**WARNING**

This subgroup is not complete pending a reorganisation, see [A61B 8/08](#) and [A61B 8/14](#)

- A61B 8/5207 . . {involving processing of raw data to produce diagnostic data, e.g. for generating an image (reconstruction [G06T 11/00](#))}
- A61B 8/5215 . . {involving processing of medical diagnostic data}
- A61B 8/5223 . . . {for extracting a diagnostic or physiological parameter from medical diagnostic data (for algorithms to analyse biomedical images [G06T 7/0012](#); for algorithms for computer assisted diagnosis [G06F 19/34](#))}
- A61B 8/523 . . . {for generating planar views from image data in a user selectable plane not corresponding to the acquisition plane}
- A61B 8/5238 . . . {for combining image data of patient, e.g. merging several images from different acquisition modes into one image (for image registration algorithms [G06T 7/0024](#))}
- A61B 8/5246 . . . . {combining images from the same or different imaging techniques, e.g. color Doppler and B-mode}
- A61B 8/5253 . . . . {combining overlapping images, e.g. spatial compounding}
- A61B 8/5261 . . . . {combining images from different diagnostic modalities, e.g. ultrasound and X-ray}
- A61B 8/5269 . . {involving detection or reduction of artifacts (for image enhancement algorithms [G06T 5/00](#))}
- A61B 8/5276 . . . {due to motion}
- A61B 8/5284 . . {involving retrospective matching to a physiological signal}
- A61B 8/5292 . . {using additional data, e.g. patient information, image labeling, acquisition parameters}
- A61B 8/54 . {Control of the diagnostic device}
- A61B 8/543 . . {involving acquisition triggered by a physiological signal}
- A61B 8/546 . . {involving monitoring or regulation of device temperature}
- A61B 8/56 . {Details of data transmission or power supply}

**WARNING**

This subgroup is not complete pending a reorganisation, see [A61B 8/00](#)

- A61B 8/565 . . {involving data transmission via a network (management of patient information using digital computers [G06F 19/32](#))}

- A61B 8/58 . {Testing, adjusting or calibrating the diagnostic device}

**WARNING**

This subgroup is not complete pending a reorganisation, see [A61B 8/00](#)

- A61B 8/582 . . {Remote testing of the device}

- A61B 8/585 . . {Automatic set-up of the device}

- A61B 8/587 . . {Calibration phantoms (models for medical purposes [G09B 23/28](#))}

**A61B 9/00**

**Instruments for examination by percussion; Pleximeters**

- A61B 9/005 . {Electric apparatus for detecting reflex action, e.g. monitoring depth of anaesthesia ([detection of movements A61B 5/11](#))}

**A61B 10/00**

**Other methods or instruments for diagnosis, e.g. instruments for taking a cell sample, for biopsy, for vaccination diagnosis ([vaccination prophylaxis, vaccination therapy A61B 17/20](#)); Sex determination; Ovulation-period determination ([menstruation tables G06C 3/00](#)); Throat striking implements**

**NOTE**

Attention is drawn to group [A61F 13/15](#) which provides for swabs

- A61B 2010/0003 . {including means for analysis by an unskilled person}

- A61B 2010/0006 . . {involving a colour change}

- A61B 2010/0009 . {Testing for drug or alcohol abuse}

- A61B 10/0012 . {Ovulation-period determination ([for animals A61D 17/002](#))}

- A61B 2010/0016 . . {based on measurement of electric currents, e.g. conductivity tests}

- A61B 2010/0019 . . {based on measurement of temperature}

- A61B 2010/0022 . . {based on measurement of viscosity or visco-elasticity}

- A61B 2010/0025 . . {based on analysis of crystallisation structure}

- A61B 2010/0029 . . {based on time measurement}

- A61B 2010/0032 . . {based on measurement of pH-value}

- A61B 10/0035 . {Vaccination diagnosis other than by injuring the skin, e.g. allergy test patches}

- A61B 10/0038 . {Devices for taking faeces samples; Faecal examination devices ([anal receptacles A61F 5/451](#))}

- A61B 10/0041 . {Detection of breast cancer ([mammography by transillumination A61B 5/0091](#), by X-rays [A61B 6/502](#), by ultrasonic means [A61B 8/0825](#))}

- A61B 10/0045 . {Devices for taking samples of body liquids ([devices for taking blood samples A61B 5/1405](#))}

- A61B 10/0048 . . {for taking amniotic fluid samples}

- A61B 10/0051 . . {for taking saliva or sputum samples ([devices for receiving spittle A61J 9/00](#))}

- A61B 2010/0054 . . {Ear liquid}

- A61B 10/0058 . . {for taking sperm samples ([artificial insemination A61B 17/43](#); [for animals A61D 19/021](#); [genital receptacles for the male member A61F 5/453](#); [massage of the genitals A61H 19/00](#))}

- A61B 2010/0061 . . {Alimentary tract secretions, e.g. biliary, gastric, intestinal, pancreatic secretions}

- A61B 10/0064 . . {for taking sweat or sebum samples (measuring sweat production [A61B 5/4266](#))}
- A61B 2010/0067 . . {Tear or lachrymal fluid}
- A61B 10/007 . . {for taking urine samples (measuring urological functions [A61B 5/20](#); genital receptacles [A61F 5/451](#); urinals for bed-ridden persons [A61G 9/006](#))}
- A61B 2010/0074 . . {Vaginal or cervical secretions}
- A61B 2010/0077 . . {Cerebrospinal fluid}
- A61B 2010/008 . . {Interstitial fluid}
- A61B 2010/0083 . {for taking gas samples}
- A61B 2010/0087 . . {Breath samples}
- A61B 2010/009 . {Various features of diagnostic instruments}
- A61B 2010/0093 . . {slide rules}
- A61B 10/0096 . {Casings for storing test samples ([A61B 10/0038](#) and [A61B 10/0045](#) take precedence; preservation of living parts of the human or animal body [A01N 1/02](#); containers for retaining a material to be analysed [B01L 3/50](#); test tubes [B01L 3/14](#); containers for enzymology or microbiology [C12M 1/16](#); swab-sampler being part of enzymology or microbiology container [C12M 1/30](#))}
- A61B 10/02 . Instruments for taking cell samples or for biopsy {([A61B 10/0038](#) and [A61B 10/0045](#) take precedence; needle locating or guiding means [A61B 17/3403](#); samplers for enzymology or microbiology [C12M 1/26](#); sampling or preparing biological specimens [G01N 33/48](#))}
- A61B 2010/0208 . . {Biopsy devices with actuators, e.g. with triggered spring mechanisms}
- A61B 2010/0216 . . {Sampling brushes}
- A61B 2010/0225 . . {for taking multiple samples}
- A61B 10/0233 . . {Pointed or sharp biopsy instruments}
- A61B 10/0241 . . . {for prostate}
- A61B 10/025 . . . {for taking bone, bone marrow or cartilage samples}
- A61B 2010/0258 . . . . {Marrow samples}
- A61B 10/0266 . . . {means for severing sample}
- A61B 10/0275 . . . . {with sample notch, e.g. on the side of inner stylet}
- A61B 10/0283 . . . {with vacuum aspiration, e.g. caused by retractable plunger or by connected syringe ([A61B 10/025](#), [A61B 10/0266](#) take precedence)}
- A61B 10/0291 . . {for uterus ([A61B 10/0045](#) takes precedence)}
- A61B 10/04 . . Endoscopic instruments
- A61B 2010/045 . . . {Needles (pointed biopsy devices with vacuum aspiration [A61B 10/0283](#))}
- A61B 10/06 . . Biopsy forceps (e.g. with cup-shaped jaws)
- A61B 13/00** **Instruments for depressing the tongue** (combined with illuminating and viewing instruments [A61B 1/24](#))
- A61B 16/00** **Devices specially adapted for vivisection or autopsy** (similar devices for medical purposes, see the relevant groups for such devices; {autopsy tables [A61G 13/0027](#)})

**Surgery****A61B 17/00**

**Surgical instruments, devices or methods, e.g. tourniquets** ([A61B 18/00](#) takes precedence; contraceptive devices, pessaries, or applicators therefor [A61F 6/00](#); eye surgery [A61F 9/007](#); ear surgery [A61F 11/00](#))

- A61B 2017/00004 . {(bio)absorbable, (bio)resorbable, resorptive (for implantable prostheses [A61F 2210/0004](#))}
- A61B 17/00008 . {Vein tendon strippers (tube strippers [A61M 1/0078](#))}
- A61B 2017/00013 . . {Cables with a stripper head}
- A61B 2017/00017 . {Electrical control of surgical instruments}
- A61B 2017/00022 . . {Sensing or detecting at the treatment site}
- A61B 2017/00026 . . . {Conductivity or impedance, e.g. of tissue}
- A61B 2017/0003 . . . . {of parts of the instruments}
- A61B 2017/00035 . . . . {pH}
- A61B 2017/00039 . . . {Electric or electromagnetic phenomena other than conductivity, e.g. capacity, inductivity, Hall effect}
- A61B 2017/00044 . . . . {Sensing electrocardiography, i.e. ECG}
- A61B 2017/00048 . . . . . {Spectral analysis}
- A61B 2017/00053 . . . . . . {Mapping}
- A61B 2017/00057 . . . {Light}
- A61B 2017/00061 . . . . {spectrum}
- A61B 2017/00066 . . . . {intensity}
- A61B 2017/0007 . . . . . {Pyrometers}
- A61B 2017/00075 . . . {Motion}
- A61B 2017/00079 . . . {Radioactivity}
- A61B 2017/00084 . . . {Temperature}
- A61B 2017/00088 . . . . {using thermistors}
- A61B 2017/00092 . . . . {using thermocouples}
- A61B 2017/00097 . . . . . {one of the thermometric elements being an electrode or the heating element}
- A61B 2017/00101 . . . . {using an array of thermosensors}
- A61B 2017/00106 . . . {ultrasonic}
- A61B 2017/0011 . . . . {piezo-electric}
- A61B 2017/00115 . . {with audible or visual output (with imaging means [A61B 19/5225](#))}
- A61B 2017/00119 . . . {alarm; indicating an abnormal situation}
- A61B 2017/00123 . . . . {and automatic shutdown}
- A61B 2017/00128 . . . {related to intensity or progress of surgical action}
- A61B 2017/00132 . . {Setting operation time of a device ([A61B 2017/00123](#) takes precedence)}
- A61B 2017/00137 . . {Details of operation mode}
- A61B 2017/00141 . . . {continuous, e.g. wave}
- A61B 2017/00146 . . . . {with multiple frequencies}

A61B 2017/0015	. . . . .	{applied simultaneously}
A61B 2017/00154	. . .	{pulsed}
A61B 2017/00159	. . . . .	{Pulse shapes}
A61B 2017/00163	. . . . .	{starting with a negative pulse}
A61B 2017/00168	. . . . .	{Spike}
A61B 2017/00172	. . . . .	{Pulse trains, bursts, intermittent continuous operation}
A61B 2017/00176	. . . . .	{Two pulses, e.g. second pulse having an effect different from the first one}
A61B 2017/00181	. . . . .	{Means for setting or varying the pulse energy}
A61B 2017/00185	. . . . .	{Means for setting or varying the pulse height}
A61B 2017/0019	. . . . .	{Means for setting or varying the pulse width}
A61B 2017/00194	. . . . .	{Means for setting or varying the repetition rate}
A61B 2017/00199	. .	{with a console, e.g. a control panel with a display}
A61B 2017/00203	. .	{with speech control or speech recognition}
A61B 2017/00207	. .	{with hand gesture control or hand gesture recognition}
A61B 2017/00212	. .	{using remote controls}
A61B 2017/00216	. .	{with eye tracking or head position tracking control}
A61B 2017/00221	. .	{with wireless transmission of data , e.g. by infrared radiation or radiowaves}
A61B 2017/00225	. .	{Systems for controlling multiple different instruments, e.g. microsurgical systems}
A61B 2017/0023	. .	{disposable}
A61B 17/00234	. .	{for minimally invasive surgery ( <a href="#">A61B 17/0218</a> , <a href="#">A61B 17/0469</a> , <a href="#">A61B 17/12013</a> , <a href="#">A61B 17/1285</a> , <a href="#">A61B 17/29</a> , <a href="#">A61B 17/320016</a> take precedence)}
A61B 2017/00238	. .	{Type of minimally invasive operation ( <a href="#">A61B 2017/00805</a> takes precedence)}
A61B 2017/00243	. . .	{cardiac}
A61B 2017/00247	. . . . .	{Making holes in the wall of the heart, e.g. laser Myocardial revascularization}
A61B 2017/00252	. . . . .	{for by-pass connections, i.e. connections from heart chamber to blood vessel or from blood vessel to blood vessel}
A61B 2017/00256	. . . . .	{Creating an electrical block}
A61B 2017/00261	. . .	{Discectomy}
A61B 2017/00265	. . .	{Hand assisted surgery, i.e. minimally invasive surgery with at least part of an assisting hand inside the body}
A61B 2017/00269	. . .	{endoscopic mucosal resection EMR}
A61B 2017/00274	. . .	{Prostate operation, e.g. prostatectomy, turp, bhp treatment}
A61B 2017/00278	. . .	{Transorgan operations, e.g. transgastric}
A61B 2017/00283	. . .	{with a device releasably connected to an inner wall of the abdomen during surgery, e.g. an illumination source}
A61B 2017/00287	. .	{Bags for minimally invasive surgery}
A61B 2017/00292	. .	{mounted on or guided by flexible, e.g. catheter-like, means}
A61B 2017/00296	. . .	{mounted on an endoscope}
A61B 2017/003	. . .	{Steerable}

- A61B 2017/00305 . . . . {Constructional details of the flexible means}
- A61B 2017/00309 . . . . . {Cut-outs or slits}
- A61B 2017/00314 . . . . . {Separate linked members}
- A61B 2017/00318 . . . . . {Steering mechanisms}
- A61B 2017/00323 . . . . . {Cables or rods}
- A61B 2017/00327 . . . . . {with actuating members moving in opposite directions}
- A61B 2017/00331 . . . . . {with preformed bends}
- A61B 2017/00336 . . . {with a protective sleeve, e.g. retractable or slidable}
- A61B 2017/0034 . . . {adapted to be inserted through a working channel of an endoscope}
- A61B 2017/00345 . . {Micromachines, nanomachines, microsystems}
- A61B 2017/00349 . . {Needle-like instruments having hook or barb-like gripping means, e.g. for grasping suture or tissue ([A61B 17/06066](#) takes precedence)}
- A61B 2017/00353 . . {one mechanical instrument performing multiple functions, e.g. cutting and grasping (channel for multiple instruments [A61B 2017/3445](#); instrument channel [A61B 2017/22072](#); replaceable heads [A61B 2017/2931](#); suction [A61M 1/00](#))}
- A61B 2017/00358 . . {Snares for grasping}
- A61B 2017/00362 . . {Packages or dispensers for MIS instruments ([A61B 2017/0479](#) takes precedence)}
- A61B 2017/00367 . {Details of actuation of instruments, e.g. relations between pushing buttons, or the like, and activation of the tool, working tip, or the like}
- A61B 2017/00371 . . {Multiple actuation, e.g. pushing of two buttons, or two working tips becoming operational}
- A61B 2017/00376 . . . {Simultaneous actuation of two tools by simultaneously pushing two buttons}
- A61B 2017/0038 . . . {Simultaneous actuation of two tools by pushing one button or the like}
- A61B 2017/00384 . . . {Actuation of one tool by pushing two buttons simultaneously}
- A61B 2017/00389 . . {Button or wheel for performing multiple functions, e.g. rotation of shaft and end effector}
- A61B 2017/00393 . . . {with means for switching between functions}
- A61B 2017/00398 . . {using powered actuators, e.g. stepper motors, solenoids}
- A61B 2017/00402 . . . {Piezo electric actuators}
- A61B 2017/00407 . . {Ratchet means}
- A61B 2017/00411 . . {actuated by application of energy from an energy source outside the body}
- A61B 2017/00415 . . {having power generation near the working tip of the tool}
- A61B 2017/0042 . {with special provisions for gripping}
- A61B 2017/00424 . . {ergonomic, e.g. fitting in fist}
- A61B 2017/00429 . . {with a roughened portion}
- A61B 2017/00433 . . . {knurled}
- A61B 2017/00438 . . {connectable to a finger}
- A61B 2017/00442 . . {connectable to wrist or forearm}
- A61B 2017/00446 . . {for use only by lefthanded or only by righthanded persons}

- A61B 2017/00451 . . . {by lefthanded persons}
- A61B 2017/00455 . . {Orientation indicators, e.g. recess on the handle}
- A61B 2017/0046 . {with a releasable handle; with handle and operating part separable (for prosthetic joint-implanting tools [A61F 2002/4624](#))}
- A61B 2017/00464 . . {for use with different instruments (with hole for different instruments [A61B 2017/22072](#))}
- A61B 2017/00469 . . {for insertion of instruments, e.g. guide wire, optical fibre}
- A61B 2017/00473 . . {Distal part, e.g. tip or head ([A61B 2017/00464](#) takes precedence)}
- A61B 2017/00477 . {Coupling ([A61B 2017/0046](#) takes precedence)}
- A61B 2017/00482 . . {with a code}
- A61B 2017/00486 . . {Adaptors for coupling parts with incompatible geometries}
- A61B 17/00491 . {Surgical glue applicators (surgical adhesives [A61L 24/00](#); two-component delivery syringes [A61M 5/19](#))}
- A61B 2017/00495 . . {for two-component glue}
- A61B 2017/005 . . {hardenable using external energy source, e.g. laser, ultrasound}
- A61B 2017/00504 . . {Tissue welding}
- A61B 2017/00508 . . . {using laser}
- A61B 2017/00513 . . {Tissue soldering}
- A61B 2017/00517 . . . {using laser}
- A61B 2017/00522 . . {Sprayers}
- A61B 2017/00526 . {Methods of manufacturing}
- A61B 2017/0053 . . {Loading magazines or sutures into applying tools}
- A61B 2017/00535 . {pneumatically or hydraulically operated ([A61B 2017/22051](#), [A61B 2019/385](#) take precedence)}
- A61B 2017/00539 . . {hydraulically}
- A61B 2017/00544 . . {pneumatically}
- A61B 2017/00548 . . . {Gas cartridges therefor}
- A61B 2017/00553 . . {using a turbine}
- A61B 2017/00557 . . {inflatable ([A61B 2017/22051](#) takes precedence)}
- A61B 2017/00561 . . {creating a vacuum}
- A61B 2017/00566 . . . {fixation of form upon application of vacuum}
- A61B 17/0057 . {Implements for plugging an opening in the wall of a hollow or tubular organ, e.g. for sealing a vessel puncture or closing a cardiac septal defect (sutures [A61B 17/04](#); closing rectum or urethra near body surface [A61F 2/0009](#))}
- A61B 2017/00575 . . {for closure at remote site, e.g. closing atrial septum defects}
- A61B 2017/00579 . . . {Barbed implements}
- A61B 2017/00584 . . . {Clips}
- A61B 2017/00588 . . . {Rigid or stiff implements, e.g. made of several rigid parts linked by hinges}
- A61B 2017/00592 . . . {Elastic or resilient implements}
- A61B 2017/00597 . . . {Implements comprising a membrane}
- A61B 2017/00601 . . . {Implements entirely comprised between the two sides of the opening}



- A61B 2017/00606 . . . {Implements H-shaped in cross-section, i.e. with occluders on both sides of the opening}
- A61B 2017/0061 . . . {Implements located only on one side of the opening}
- A61B 2017/00615 . . . {Implements with an occluder on one side of the opening and holding means therefor on the other}
- A61B 2017/00619 . . . {Locking means for locking the implement in expanded state}
- A61B 2017/00623 . . . {Introducing or retrieving devices therefor}
- A61B 2017/00628 . . . {T-shaped occluders}
- A61B 2017/00632 . . . {Occluding a cavity, i.e. closing a blind opening}
- A61B 2017/00637 . . . {for sealing trocar wounds through abdominal wall}
- A61B 2017/00641 . . . {for closing fistulae, e.g. anorectal fistulae}
- A61B 2017/00646 . . . {Type of implements}
- A61B 2017/0065 . . . {the implement being an adhesive}
- A61B 2017/00654 . . . {entirely comprised between the two sides of the opening}
- A61B 2017/00659 . . . {located only on one side of the opening}
- A61B 2017/00663 . . . {the implement being a suture}
- A61B 2017/00668 . . . {the implement being a tack or a staple}
- A61B 2017/00672 . . . {Locating means therefor, e.g. bleed back lumen}
- A61B 2017/00676 . . . {promotion of self-sealing of the puncture}
- A61B 2017/00681 . . . {Aspects not otherwise provided for (**not used**)}
- A61B 2017/00685 . . . {Archimedes screw}
- A61B 2017/0069 . . . {with universal joint, cardan joint}
- A61B 2017/00694 . . . {with means correcting for movement of or for synchronisation with the body}
- A61B 2017/00699 . . . {correcting for movement caused by respiration, e.g. by triggering}
- A61B 2017/00703 . . . {correcting for movement of heart, e.g. ECG-triggered}
- A61B 2017/00707 . . . {Dummies, phantoms; Devices simulating patient or parts of patient}
- A61B 2017/00712 . . . {simulating mathematical properties, e.g. for testing of positioning in the isocentre or focus}
- A61B 2017/00716 . . . {simulating physical properties}
- A61B 2017/00721 . . . . {using artificial kidney stones for testing purposes}
- A61B 2017/00725 . . . {Calibration or performance testing}
- A61B 2017/0073 . . . {with means for minimising or preventing pain during treatment}
- A61B 2017/00734 . . . {battery operated}
- A61B 2017/00738 . . . {part of the tool being offset with respect to a main axis, e.g. for better view for the surgeon}
- A61B 2017/00743 . . . {Type of operation; Specification of treatment sites ([A61B 2017/00238](#) takes precedence)}
- A61B 2017/00747 . . . {Dermatology}
- A61B 2017/00752 . . . {Hair removal or transplantation}
- A61B 2017/00756 . . . {Port wine stains}
- A61B 2017/00761 . . . {Removing layer of skin tissue, e.g. wrinkles, scars or cancerous tissue}

- A61B 2017/00765 . . . {Decreasing the barrier function of skin tissue by radiated energy, e.g. using ultrasound, using laser for skin perforation}
- A61B 2017/00769 . . . {Tattoo removal}
- A61B 2017/00774 . . . {Wart}
- A61B 2017/00778 . . {Operations on blood vessels ([A61B 2017/22097](#), [A61B 2017/320741](#) take precedence)}
- A61B 2017/00783 . . . {Valvuloplasty}
- A61B 2017/00787 . . {Surgery of the ear}
- A61B 2017/00792 . . {Plastic surgery}
- A61B 2017/00796 . . {Breast surgery}
- A61B 2017/008 . . . {Removal of tumors}
- A61B 2017/00805 . . {Treatment of female stress urinary incontinence}
- A61B 2017/00809 . . {Lung operations}
- A61B 2017/00814 . . {Surgery of the tongue e.g. glossoplasty}
- A61B 2017/00818 . . {Treatment of the gastro-intestinal system}
- A61B 2017/00823 . . . {Appendectomy}
- A61B 2017/00827 . . . {Treatment of gastro-esophageal reflux}
- A61B 2017/00831 . {Material properties}
- A61B 2017/00836 . . {corrosion-resistant ([A61B 2017/00853](#) takes precedence; preventing galvanic or electrolytic corrosion in prostheses [A61F 2210/0009](#))}
- A61B 2017/0084 . . {low friction ([A61B 2017/00853](#) takes precedence)}
- A61B 2017/00845 . . . {of moving parts with respect to each other}
- A61B 2017/00849 . . . {with respect to tissue, e.g. hollow organs}
- A61B 2017/00853 . . {low friction, hydrophobic and corrosion-resistant fluorocarbon resin coating (ptf, ptfe, polytetrafluoroethylene)}
- A61B 2017/00858 . . {high friction, non-slip (on handles [A61B 2017/00429](#))}
- A61B 2017/00862 . . {elastic or resilient (for sutures [A61B 2017/0618](#))}
- A61B 2017/00867 . . {shape memory effect (for prostheses [A61F 2210/0014](#))}
- A61B 2017/00871 . . . {polymeric}
- A61B 2017/00876 . . {magnetic}
- A61B 2017/0088 . . {ceramic}
- A61B 2017/00884 . . {enhancing wound closure}
- A61B 2017/00889 . . {antimicrobial, disinfectant}
- A61B 2017/00893 . . {pharmaceutically effective}
- A61B 2017/00898 . . {expandable upon contact with fluid}
- A61B 2017/00902 . . {transparent or translucent}
- A61B 2017/00907 . . . {for light}
- A61B 2017/00911 . . . {for fields applied by a magnetic resonance imaging system}
- A61B 2017/00915 . . . {for radioactive radiation}
- A61B 2017/0092 . . . . {for X-rays}
- A61B 2017/00924 . . . {for ultrasonic waves}

- A61B 2017/00929 . . {isolating electrical current}
- A61B 2017/00933 . . {bone or bone-like}
- A61B 2017/00938 . . {hydrophobic}
- A61B 2017/00942 . . {hydrophilic}
- A61B 2017/00946 . . {malleable}
- A61B 2017/00951 . . {adhesive}
- A61B 2017/00955 . . {thermoplastic}
- A61B 2017/0096 . . {self cleaning, e.g. having lotus effect}
- A61B 2017/00964 . . {composite}
- A61B 2017/00969 . {used for transplantation}
- A61B 2017/00973 . {pedal-operated}
- A61B 2017/00977 . . {the depression depth determining the power rate}
- A61B 2017/00982 . {General structural features}
- A61B 2017/00986 . . {Malecots, e.g. slotted tubes, of which the distal end is pulled to deflect side struts}
- A61B 2017/00991 . . {Telescopic means}
- A61B 2017/00995 . . {having a thin film}
- A61B 17/02 . for holding wounds open; Tractors ({specula [A61B 1/32](#) ; drainage appliances for wounds [A61M 27/00](#))
- A61B 17/0206 . . {with antagonistic arms as supports for retractor elements}
- A61B 2017/0212 . . {Cushions or pads, without holding arms, as tissue retainers, e.g. for retracting viscera}
- A61B 17/0218 . . {for minimally invasive surgery ([A61B 17/0218](#), [A61B 17/0281](#), [A61B 17/0469](#), [A61B 17/12013](#), [A61B 17/1285](#), [A61B 17/29](#), [A61B 17/320016](#) take precedence)}
- A61B 2017/0225 . . . {flexible, e.g. fabrics, meshes, or membranes}
- A61B 17/0231 . . {for eye surgery}
- A61B 2017/0237 . . {for heart surgery (endoscopic heart surgery [A61B 2017/00243](#); endoscopic access devices, i.e. trocars, [A61B 17/34](#))}
- A61B 2017/0243 . . . {for immobilizing local areas of the heart, e.g. while it beats (trocars attached to inner organs or inner body tissue [A61B 2017/3488](#))}
- A61B 17/025 . . {Joint distractors}
- A61B 2017/0256 . . . {for the spine}
- A61B 2017/0262 . . . . {with a provision for protecting nerves}
- A61B 2017/0268 . . . {for the knee}
- A61B 2017/0275 . . . {for the hip}
- A61B 17/0281 . . {Abdominal wall lifters}
- A61B 2017/0287 . . {with elastic retracting members connectable to a frame, e.g. hooked elastic wires}
- A61B 17/0293 . . {with ring member to support retractor elements}
- A61B 17/04 . for suturing wounds; Holders or packages for needles or suture materials (suture materials [A61L 17/00](#))

- A61B 17/0401 . . {Suture anchors, buttons or pledgets, i.e. means for attaching sutures to bone, cartilage or soft tissue; Instruments for applying or removing suture anchors ([A61B 17/0642](#) takes precedence; fixation devices for tendons or ligaments [A61F 2/0811](#))}
- A61B 2017/0403 . . . {Dowels (other bone dowels [17:68](#); dowels for connecting prosthetic parts [A61F 2002/30436](#))}
- A61B 2017/0404 . . . {Buttons}
- A61B 2017/0406 . . . {Pledgets}
- A61B 2017/0408 . . . {Rivets (other bone rivets [17:68](#); rivets for connecting prosthetic parts [A61F 2002/30441](#), [A61F 2220/0041](#))}
- A61B 2017/0409 . . . {Instruments for applying suture anchors (for applying suture clamps, clips or locks [A61B 2017/0488](#))}
- A61B 2017/0411 . . . {Instruments for removing suture anchors (for removing suture clamps, clips or locks [A61B 2017/049](#))}
- A61B 2017/0412 . . . {having anchoring barbs or pins extending outwardly from suture anchor body}
- A61B 2017/0414 . . . {having a suture-receiving opening, e.g. lateral opening (lateral eyelet for attaching suture to needle [A61B 2017/06019](#))}
- A61B 2017/0416 . . . {Packages or dispensers for suture anchors or for anchor applicators}
- A61B 2017/0417 . . . {T-fasteners}
- A61B 2017/0419 . . . {H-fasteners}
- A61B 2017/042 . . . {plastically deformed during insertion}
- A61B 2017/0422 . . . . {by insertion of a separate member into the body of the anchor}
- A61B 2017/0424 . . . . . {the separate member staying in the anchor after placement}
- A61B 2017/0425 . . . . . {the anchor or the separate member comprising threads, e.g. a set screw in the anchor}
- A61B 2017/0427 . . . {having anchoring barbs or pins extending outwardly from the anchor body}
- A61B 2017/0429 . . . . {the barbs being expanded by a mechanical mechanism which also locks them in the expanded state}
- A61B 2017/043 . . . . . {by insertion of a separate spreading member into the anchor}
- A61B 2017/0432 . . . . . . {the separate member staying in the anchor after placement}
- A61B 2017/0433 . . . . . . {the anchor or the separate member comprising threads, e.g. a set screw or a worm gear for moving spreading members}
- A61B 2017/0435 . . . . {the barbs being separate elements mechanically linked to the anchor, e.g. by pivots}
- A61B 2017/0437 . . . . {the barbs being resilient or spring-like}
- A61B 2017/0438 . . . {slotted, i.e. having a longitudinal slot for enhancing their elasticity}
- A61B 2017/044 . . . {with a threaded shaft, e.g. screws}
- A61B 2017/0441 . . . . {the shaft being a rigid coil or spiral}
- A61B 2017/0443 . . . . {the shaft being resilient and having a coiled or helical shape in the released state}
- A61B 2017/0445 . . . {cannulated, e.g. with a longitudinal through-hole for passage of an instrument}
- A61B 2017/0446 . . . {Means for attaching and blocking the suture in the suture anchor}

- A61B 2017/0448 . . . . {Additional elements on or within the anchor}
- A61B 2017/045 . . . . {snug fit within the anchor}
- A61B 2017/0451 . . . . {Cams or wedges holding the suture by friction}
- A61B 2017/0453 . . . . {threaded elements, e.g. set screws}
- A61B 2017/0454 . . . . {the anchor being crimped or clamped on the suture}
- A61B 2017/0456 . . . . {Surface features on the anchor, e.g. ribs increasing friction between the suture and the anchor}
- A61B 2017/0458 . . . . {Longitudinal through hole, e.g. suture blocked by a distal suture kno}
- A61B 2017/0459 . . . . {Multiple holes in the anchor through which the suture extends and locking the suture when tension is applied}
- A61B 2017/0461 . . . . {with features cooperating with special features on the suture, e.g. protrusions on the suture}
- A61B 2017/0462 . . . . {One way system, i.e. also tensioning the suture}
- A61B 2017/0464 . . . {for soft tissue}
- A61B 17/0466 . . {Suture bridges}
- A61B 17/0467 . . {Instruments for cutting sutures (surgical cutting instruments [A61B 17/32](#))}
- A61B 17/0469 . . {Suturing instruments for use in minimally invasive surgery, e.g. endoscopic surgery}
- A61B 2017/047 . . . {having at least one proximally pointing needle located at the distal end of the instrument, e.g. for suturing trocar puncture wounds starting from inside the body ([J-shaped suture needles A61B 2017/0608](#))}
- A61B 2017/0472 . . . {Multiple-needled, e.g. double-needled, instruments}
- A61B 2017/0474 . . . {Knot pushers}
- A61B 2017/0475 . . . {using sutures having a slip knot}
- A61B 2017/0477 . . . {with pre-tied sutures}
- A61B 2017/0479 . . . {Packages or dispensers for MIS suturing instruments}
- A61B 2017/048 . . . {for reducing heart wall tension, e.g. sutures with a pad on each extremity}
- A61B 17/0482 . . {Needle or suture guides (guides for drills, pins or wire [A61B 17/17](#); for puncturing needles [A61B 17/3403](#))}
- A61B 17/0483 . . {Hand-held instruments for holding sutures ([A61B 17/0469](#) takes precedence; other holders for needles or sutures [A61B 17/06061](#); surgical forceps [A61B 17/28](#); surgical pincettes [A61B 17/30](#))}
- A61B 17/0485 . . {Devices or means, e.g. loops, for capturing the suture thread and threading it through an opening of a suturing instrument or needle eyelet}
- A61B 17/0487 . . {Suture clamps, clips or locks, e.g. for replacing suture knots; Instruments for applying or removing suture clamps, clips or locks (suture anchors [A61B 17/0401](#); wound clamps or clips [A61B 17/08](#); ligaturing clamps or clips [A61B 17/122](#))}
- A61B 2017/0488 . . . {Instruments for applying suture clamps, clips or locks (for applying suture anchors [A61B 2017/0409](#); for applying wound clamps [A61B 17/10](#); for applying ligaturing clamps or clips [A61B 17/128](#))}
- A61B 2017/049 . . . {Instruments for removing suture clamps, clips or locks (for removing suture anchors [A61B 2017/0411](#); for removing wound clamps [A61B 17/10](#); for removing ligaturing clamps or clips [A61B 17/128](#))}

- A61B 17/0491 . . {Sewing machines for surgery}
- A61B 17/0493 . . {Protective devices for suturing, i.e. for protecting the patient's organs or the operator}
- A61B 2017/0495 . . {Reinforcements for suture lines}
- A61B 2017/0496 . . {for tensioning sutures}
- A61B 2017/0498 . . {for advancing a suture filament along a helical path through tissue}
- A61B 17/06 . . Needles; {Sutures; Needle-suture combinations}; Holders or packages for needles or suture materials (puncturing needles [A61B 17/34](#); nerve needles [A61C 5/02](#); hypodermic needles [A61M 5/32](#); {sewing needles [D05B 85/00](#)})
- A61B 17/06004 . . . {Means for attaching suture to needle (tipping [A61B 17/06195](#); connecting wire to other metallic objects [B21F 15/00](#))}
- A61B 2017/06009 . . . . {having additional means for releasably clamping the suture to the needle, e.g. actuating rod slideable within the needle}
- A61B 2017/06014 . . . . {spring-loaded}
- A61B 2017/06019 . . . . {by means of a suture-receiving lateral eyelet machined in the needle (lateral opening for attaching suture to suture anchor [A61B 2017/0414](#))}
- A61B 2017/06023 . . . . . {Multiple eyelets}
- A61B 2017/06028 . . . . {by means of a cylindrical longitudinal blind bore machined at the suture-receiving end of the needle, e.g. opposite to needle tip}
- A61B 2017/06033 . . . . {using adhesives (glue applicators [A61B 17/00491](#); for connecting prosthetic parts [A61F 2002/30448](#))}
- A61B 2017/06038 . . . . {soldered or brazed or welded (for connecting prosthetic parts [A61F 2002/30451](#), [A61F 2220/0058](#))}
- A61B 2017/06042 . . . . {located close to needle tip}
- A61B 2017/06047 . . . . {located at the middle of the needle}
- A61B 2017/06052 . . . {Needle-suture combinations in which a suture is extending inside a hollow tubular needle, e.g. over the entire length of the needle (hollow suture needles [A61B 2017/061](#))}
- A61B 2017/06057 . . . {Double-armed sutures, i.e. sutures having a needle attached to each end}
- A61B 17/06061 . . . {Holders for needles or sutures, e.g. racks, stands (hand-held holding instruments [A61B 17/0483](#); holders for articles [A61B 19/0256](#); racks for syringes or for hypodermic or infusion needles [A61M 5/008](#))}
- A61B 17/06066 . . . {Needles, e.g. needle tip configurations (making needles [B21G 1/00](#))}
- A61B 2017/06071 . . . . {with an abrupt angle formed between two adjacent sections}
- A61B 2017/06076 . . . . {helically or spirally coiled (for sutures [A61B 2017/06171](#))}
- A61B 2017/0608 . . . . {J-shaped}
- A61B 2017/06085 . . . . {having a blunt tip (blunt dissectors [A61B 2017/320044](#))}
- A61B 2017/0609 . . . . {having sharp tips at both ends, e.g. shuttle needle alternately retained and released by first and second facing jaws of a suturing instrument (MIS suturing instruments [A61B 17/0469](#); jaws of MIS forceps [A61B 2017/2926](#))}
- A61B 2017/06095 . . . . {pliable}



A61B 2017/061	. . . .	{hollow or tubular (suture extending inside a hollow needle <a href="#">A61B 2017/06052</a> ; hollow sutures <a href="#">A61B 2017/06185</a> )}
A61B 2017/06104	. . . .	{interconnected at their distal ends, e.g. two hollow needles forming a loop for passing a suture}
A61B 17/06109	. . . .	{Big needles, either gripped by hand or connectable to a handle}
A61B 17/06114	. . . .	{Packages or dispensers for needles or sutures (packages for sharps <a href="#">A61B 19/0262</a> ; for dental floss <a href="#">A61C 15/043</a> ; packages for needles in general <a href="#">B65D 85/24</a> )}
A61B 17/06119	. . . .	{of cylindrical shape}
A61B 17/06123	. . . . .	{Flat cylinders, e.g. including an inner reel}
A61B 17/06128	. . . . .	{Elongate cylinders, i.e. tubes}
A61B 17/06133	. . . .	{of parallelepipedal shape, e.g. made of rectangular or slightly oval panels}
A61B 17/06138	. . . . .	{including a retainer comprising three or more foldable panels}
A61B 2017/06142	. . . .	{having needle- or suture- retaining members, e.g. holding tabs or needle parks}
A61B 2017/06147	. . . . .	{Foam blocks, e.g. slitted}
A61B 2017/06152	. . . .	{containing a suture wound in a figure-8 configuration}
A61B 2017/06157	. . . .	{containing a suture wound in a sinusoidal or zigzag configuration}
A61B 17/06161	. . . .	{Devices for removing or collecting used needles or sutures ( <a href="#">A61B 17/0467</a> takes precedence; for sharps <a href="#">A61B 19/0288</a> )}
A61B 17/06166	. . . .	{Sutures (suture materials <a href="#">A61L 17/00</a> ; manufacture of artificial threads <a href="#">D01D</a> ; treatment of threads <a href="#">D06M</a> )}
A61B 2017/06171	. . . .	{helically or spirally coiled (for needles <a href="#">A61B 2017/06076</a> )}
A61B 2017/06176	. . . .	{with protrusions, e.g. barbs}
A61B 2017/0618	. . . .	{elastic, e.g. stretchable (for prostheses <a href="#">A61F 2210/0057</a> )}
A61B 2017/06185	. . . .	{hollow or tubular (hollow suture needles <a href="#">A61B 2017/061</a> )}
A61B 2017/0619	. . . .	{thermoplastic, e.g. for bonding, welding, fusing or cutting the suture by melting it (suture cutters <a href="#">A61B 17/0467</a> ; ultrasonic cutters <a href="#">A61B 17/320068</a> ; electrically heated instruments <a href="#">A61B 18/08</a> )}
A61B 17/06195	. . . .	{Apparatus or means for preparing the cut end of the suture thread to be attached to the needle, e.g. tipping to prevent brooming ( <a href="#">A61B 17/06004</a> takes precedence)}
A61B 17/062	. . . .	Needle manipulators
A61B 17/0625	. . . .	{the needle being specially adapted to interact with the manipulator, e.g. being ridged to snap fit in a hole of the manipulator ( <a href="#">A61B 17/06109</a> takes precedence)}
A61B 17/064	. . . .	Surgical staples, {i.e. penetrating the tissue}
A61B 2017/0641	. . . .	{having at least three legs as part of one single body}
A61B 17/0642	. . . .	{for bones, e.g. for osteosynthesis or connecting tendon to bone}
A61B 17/0643	. . . .	{with separate closing member, e.g. for interlocking with staple}
A61B 17/0644	. . . .	{penetrating the tissue, deformable to closed position}
A61B 2017/0645	. . . .	{being elastically deformed for insertion}
A61B 2017/0646	. . . .	{for insertion into cartilage, e.g. meniscus}



- A61B 2017/0647 . . {having one single leg, e.g. tacks}
- A61B 2017/0648 . . . {threaded, e.g. tacks with a screw thread}
- A61B 2017/0649 . . {Coils or spirals}
- A61B 17/068 . Surgical staplers {, e.g. containing multiple staples or clamps} ({staplers containing only one staple [A61B 17/10](#); magazines or containers for staples [A61B 17/105](#);} for performing anastomosis [A61B 17/115](#); {staplers in general [B25C 5/00](#)})
- A61B 17/0682 . . {for applying U-shaped staples or clamps, e.g. without a forming anvil}
- A61B 17/0684 . . . {having a forming anvil staying above the tissue during stapling}
- A61B 17/0686 . . . {having a forming anvil staying below the tissue during stapling}
- A61B 2017/0688 . . {Packages or dispensers for surgical staplers}
- A61B 17/072 . . for applying a row of staples in a single action, [e.g. the staples being applied simultaneously]
- A61B 17/07207 . . . {the staples being applied sequentially}
- A61B 2017/07214 . . . {Stapler heads}
- A61B 2017/07221 . . . . {curved}
- A61B 2017/07228 . . . . {Arrangement of the staples}
- A61B 2017/07235 . . . . {containing different staples, e.g. staples of different shapes, sizes or materials}
- A61B 2017/07242 . . . . {achieving different staple heights during the same shot, e.g. using an anvil anvil having different heights or staples of different sizes}
- A61B 2017/0725 . . . . {with settable gap between anvil and cartridge, e.g. for different staple heights at different shots}
- A61B 2017/07257 . . . . {characterised by its anvil}
- A61B 2017/07264 . . . . . {characterised by its staple forming cavities, e.g. geometry or material}
- A61B 2017/07271 . . . . {characterised by its cartridge}
- A61B 2017/07278 . . . . {characterised by its sled or its staple holder}
- A61B 2017/07285 . . . . {characterised by its cutter}
- A61B 17/07292 . . . {Reinforcements for staple line, e.g. pledgets}
- A61B 17/076 . for removing surgical staples {or wound clamps}
- A61B 17/08 . Wound clamps {or clips, i.e. not or only partly penetrating the tissue ([suture bridges A61B 17/0466](#)); Devices for bringing together the edges of a wound}
- A61B 2017/081 . . {Tissue approximator ([A61B 2017/1103](#), [A61B 17/8866](#) take precedence)}
- A61B 17/083 . . {Clips, e.g. resilient}
- A61B 17/085 . . {with adhesive layer}
- A61B 2017/086 . . . {having flexible threads, filaments, laces or wires, e.g. parallel threads, extending laterally from a strip, e.g. for tying to opposing threads extending from a similar strip}
- A61B 2017/088 . . {Sliding fasteners}

- A61B 17/10
  - for applying or removing wound clamps, {e.g. containing only one clamp or staple ([A61B 17/076](#) takes precedence; containing multiple wound clamps [A61B 17/068](#))}; Wound clamp magazines (containers, packaging elements or packages specially adapted for particular articles or with special means for dispensing contents [B65D 83/00](#), [B65D 85/00](#))
- A61B 17/105
  - • {Wound clamp magazines (for packaging sharps [A61B 19/0262](#))}
- A61B 17/11
  - for performing anastomosis; Buttons for anastomosis
- A61B 2017/1103
  - • {Approximator}
- A61B 2017/1107
  - • {for blood vessels}
- A61B 2017/111
  - • {with means for removing a constriction after performing anastomosis}
- A61B 17/1114
  - • {of the digestive tract, e.g. bowels or oesophagus}
- A61B 2017/1117
  - • • {adapted for discharge after necrotisation, e.g. by evacuation, expulsion or excretion}
- A61B 2017/1121
  - • {adapted for performing tissue or graft eversion}
- A61B 2017/1125
  - • {Forceps, specially adapted for performing or assisting anastomosis}
- A61B 17/1128
  - • {of nerves}
- A61B 2017/1132
  - • {End-to-end connections}
- A61B 2017/1135
  - • {End-to-side connections, e.g. T- or Y-connections (Y-shaped blood vessel prostheses [A61F 2002/065](#))}
- A61B 2017/1139
  - • {Side-to-side connections, e.g. shunt or X-connections}
- A61B 2017/1142
  - • {Purse-string sutures}
- A61B 17/1146
  - • {of tendons}
- A61B 17/115
  - • Staplers {for performing anastomosis in a single operation}
- A61B 17/1152
  - • • {applying the staples on the outside of the lumen}
- A61B 17/1155
  - • • {Circular staplers comprising a plurality of staples}
- A61B 2017/1157
  - • • {applying the staples radially}
- A61B 17/12
  - for ligaturing or otherwise compressing tubular parts of the body, e.g. blood vessels, umbilical cord (specially adapted for vas deferens or fallopian tubes [A61F 6/20](#); materials for ligaturing blood vessels [A61L 17/00](#))
- A61B 2017/12004
  - • {for haemostasis, for prevention of bleeding}
- A61B 17/12009
  - • {Implements for ligaturing other than by clamps or clips, e.g. using a loop with a slip knot}
- A61B 17/12013
  - • • {for use in minimally invasive surgery, e.g. endoscopic surgery}
- A61B 2017/12018
  - • • {Elastic band ligators}
- A61B 17/12022
  - • {Occluding by internal devices, e.g. balloons or releasable wires (plugging an opening in the wall of an organ [A61B 17/0057](#); occluders for the cervical canal [A61F 6/146](#); vas deferens occluders [A61F 6/20](#))}
- A61B 17/12027
  - • • {Type of occlusion ([A61B 17/12113](#) takes precedence)}
- A61B 17/12031
  - • • • {complete occlusion}
- A61B 17/12036
  - • • • {partial occlusion}
- A61B 17/1204
  - • • • {temporary occlusion}
- A61B 17/12045
  - • • • • {double occlusion, e.g. during anastomosis}
- A61B 2017/1205
  - • • {Introduction devices}

A61B 2017/12054	. . . .	{Details concerning the detachment of the occluding device from the introduction device}
A61B 2017/12059	. . . . .	{Joint of soluble material}
A61B 2017/12063	. . . . .	{electrolytically detachable}
A61B 2017/12068	. . . . .	{detachable by heat}
A61B 2017/12072	. . . . .	{the heat created by laser light}
A61B 2017/12077	. . . . .	{Joint changing shape upon application of heat, e.g. bi-metal or reversible thermal memory}
A61B 2017/12081	. . . . .	{detachable by inflation}
A61B 2017/12086	. . . . .	{magnetically detachable}
A61B 2017/1209	. . . . .	{detachable by electrical current or potential, e.g. electroactive polymer}
A61B 2017/12095	. . . . .	{Threaded connection}
A61B 17/12099	. . .	{characterised by the location of the occluder}
A61B 17/12104	. . . .	{in an air passage}
A61B 17/12109	. . . .	{in a blood vessel}
A61B 17/12113	. . . . .	{within an aneurysm}
A61B 17/12118	. . . . .	{for positioning in conjunction with a stent}
A61B 17/12122	. . . .	{within the heart (for closing a cardiac septal defect <a href="#">A61B 17/0057</a> )}
A61B 2017/12127	. . .	{Double occlusion, e.g. for creating blood-free anastomosis site}
A61B 17/12131	. . .	{characterised by the type of occluding device}
A61B 17/12136	. . . .	{Balloons}
A61B 17/1214	. . . .	{Coils or wires}
A61B 17/12145	. . . . .	{having a pre-set deployed three-dimensional shape (methods of manufacturing <a href="#">A61B 2017/00526</a> )}
A61B 17/1215	. . . . .	{comprising additional materials, e.g. thrombogenic, having filaments, having fibers, being coated}
A61B 17/12154	. . . . .	{having stretch limiting means}
A61B 17/12159	. . . .	{Solid plugs; being solid before insertion}
A61B 17/12163	. . . .	{having a string of elements connected to each other}
A61B 17/12168	. . . .	{having a mesh structure ( <a href="#">A61B 17/1214</a> takes precedence)}
A61B 17/12172	. . . . .	{having a pre-set deployed three-dimensional shape (methods of manufacturing <a href="#">A61B 2017/00526</a> )}
A61B 17/12177	. . . . .	{comprising additional materials, e.g. thrombogenic, having filaments, having fibers or being coated}
A61B 17/12181	. . . .	{formed by fluidized, gelatinous or cellular remodelable materials, e.g. embolic liquids, foams or extracellular matrices}
A61B 17/12186	. . . . .	{liquid materials adapted to be injected}
A61B 17/1219	. . . . .	{expandable in contact with liquids}
A61B 17/12195	. . . . .	{comprising a curable material}
A61B 17/122	. .	Clamps or clips, {e.g. for the umbilical cord (for the vas deferens <a href="#">A61F 6/206</a> )}

- A61B 17/1222 . . . {Packages or dispensers therefor (clip magazines incorporated in a clip-applying instrument [A61B 17/128](#); for surgical articles [A61B 19/026](#))}
- A61B 2017/1225 . . . {for clipping and cutting in a single operation}
- A61B 17/1227 . . . {Spring clips}
- A61B 17/128 . . for applying or removing clamps or clips
- A61B 17/1285 . . . {for minimally invasive surgery}
- A61B 17/132 . . Tourniquets {(sphygmometers [A61B 5/02](#))}
- A61B 17/1322 . . . {comprising a flexible encircling member ([A61B 17/135](#) takes precedence)}
- A61B 17/1325 . . . . {with means for applying local pressure (pressure pads [A61F 5/30](#))}
- A61B 17/1327 . . . . {Tensioning clamps}
- A61B 17/135 . . . inflatable (for measuring blood pressure [A61B 5/022](#); inflatable pressure pads [A61F 5/34](#))
- A61B 17/1355 . . . . {Automated control means therefor}
- A61B 17/14 . Surgical saws ({[A61B 17/1637](#) takes precedence } ; tooth saws [A61C 3/12](#); {saws for jaw bone [A61C 8/0089](#) } ; cast-cutting saws [A61F 15/02](#)); {Accessories therefor}

**WARNING**

New subgroups of [A61B 17/14](#) are not complete, pending a reorganisation. See provisionally also group [A61B 17/14](#)

- A61B 17/141 . . {Saw blades}
- A61B 2017/143 . . {Chain saws}
- A61B 2017/145 . . {Wire or band saws}
- A61B 2017/146 . . {Circular saw}
- A61B 17/148 . . {reciprocating}
- A61B 17/15 . . Guides therefor {(arrangements for guiding straight saw blades in general [B23D 51/025](#))}
- A61B 17/151 . . . {for corrective osteotomy}
- A61B 17/152 . . . . {for removing a wedge-shaped piece of bone}
- A61B 17/154 . . . . {for preparing bone for knee prosthesis}
- A61B 17/155 . . . . {Cutting femur}
- A61B 17/157 . . . . {Cutting tibia}
- A61B 17/158 . . . . {Cutting patella}
- A61B 17/16 . {Bone cutting, breaking or removal means other than saws, e.g.} Osteoclasts; Drills or chisels for bones; Trepanns {(arthroscopic bone cutters [A61B 17/320016](#); dental implant drills potentially for other surgical use [A61C 8/0089](#); bone grinders [A61F 2/4644](#), [A22C 17/06](#); [A61B 17/1662](#) takes precedence over all other subgroups except [A61B 17/17](#))}

**WARNING**

New groups [A61B 17/1679](#), [A61B 17/1682](#), [A61B 17/1684](#), [A61B 17/1686](#), [A61B 17/1688](#), [A61B 17/1691](#) and [A61B 17/1693](#) are not complete, pending a reorganisation. See provisionally also group [A61B 17/16](#) and subgroups

- A61B 2017/1602 . . {Mills}
- A61B 17/1604 . . {Chisels; Rongeurs; Punches; Stamps}
- A61B 17/1606 . . . {of forceps type, i.e. having two jaw elements moving relative to each other}
- A61B 17/1608 . . . . {the two jaw elements being linked to two elongated shaft elements moving longitudinally relative to each other}
- A61B 17/1611 . . . . . {the two jaw elements being integral with respective elongate shaft elements}
- A61B 17/1613 . . {Component parts (not used, see subgroups)}
- A61B 17/1615 . . . {Drill bits, i.e. rotating tools extending from a handpiece to contact the worked material}
- A61B 17/1617 . . . . {with mobile or detachable parts}
- A61B 17/162 . . . {Chucks or tool parts which are to be held in a chuck}
- A61B 17/1622 . . . {Drill handpieces ([A61B 17/1626](#), [A61B 17/1628](#) take precedence)}
- A61B 17/1624 . . . . {Drive mechanisms therefor}
- A61B 17/1626 . . . {Control means; Display units}
- A61B 17/1628 . . . {Motors; Power supplies}
- A61B 17/1631 . . . {Special drive shafts, e.g. flexible shafts ([A61B 17/1642](#), [A61B 17/164](#) take precedence)}
- A61B 17/1633 . . . {Sleeves i.e. non-rotating parts surrounding the bit shaft, e.g. the sleeve forming a single unit with the bit shaft ([A61B 17/1644](#) takes precedence)}
- A61B 17/1635 . . {for grafts, harvesting or transplants}
- A61B 17/1637 . . {Hollow drills or saws producing a curved cut, e.g. cylindrical ([A61B 10/025](#), [A61B 17/1695](#) take precedence)}
- A61B 17/164 . . {intramedullary}
- A61B 17/1642 . . {for producing a curved bore}
- A61B 17/1644 . . {using fluid other than turbine drive fluid}
- A61B 17/1646 . . . {with sealing means}
- A61B 2017/1648 . . . {as cutting jet}
- A61B 2017/1651 . . . {for cooling}
- A61B 2017/1653 . . . {for lubrication}
- A61B 17/1655 . . {for tapping}
- A61B 17/1657 . . {Bone breaking devices}
- A61B 17/1659 . . {Surgical rasps, files, planes, or scrapers}
- A61B 17/1662 . . {for particular parts of the body}

**WARNING**

Subgroups [A61B 17/1679](#), [A61B 17/1682](#), [A61B 17/1684](#), [A61B 17/1686](#), [A61B 17/1688](#), [A61B 17/1691](#) and [A61B 17/1693](#) are not complete pending a reorganisation. See also [A61B 17/16](#) and subgroups thereof especially [A61B 17/1662](#)

- A61B 17/1664 . . . {for the hip}
- A61B 17/1666 . . . . {for the acetabulum}

A61B 17/1668	. . . . {for the upper femur ( <a href="#">A61B 17/164</a> takes precedence)}
A61B 17/1671	. . . {for the spine}
A61B 17/1673	. . . {for the jaw}
A61B 17/1675	. . . {for the knee}
A61B 17/1677	. . . . {for the patella}
A61B 17/1679	. . . {for the ear}
A61B 17/1682	. . . {for the foot or ankle}
A61B 17/1684	. . . {for the shoulder}
A61B 17/1686	. . . {for the hand or wrist}
A61B 17/1688	. . . {for the sinus or nose}
A61B 17/1691	. . . {for the sternum}
A61B 17/1693	. . . {for the ribs}
A61B 17/1695	. . {Trepans or craniotomes, i.e. specially adapted for drilling thin bones such as the skull}
A61B 17/1697	. . {specially adapted for wire insertion}
A61B 17/17	. . Guides {or aligning means} for drills, {mills, pins or wires}
A61B 17/1703	. . . {using imaging means, e.g. by X-rays}
A61B 17/1707	. . . {using electromagnetic effects, e.g. with magnet and external sensors}
A61B 17/171	. . . {for external fixation}
A61B 17/1714	. . . {for applying tendons or ligaments ( <a href="#">implements for applying tendons or ligaments A61F 2/0805</a> )}
A61B 17/1717	. . . {for applying intramedullary nails or pins}
A61B 17/1721	. . . {for applying pins along or parallel to the axis of the femoral neck}
A61B 17/1725	. . . {for applying transverse screws or pins through intramedullary nails or pins}
A61B 17/1728	. . . {for holes for bone plates or plate screws}
A61B 17/1732	. . . {for bone breaking devices}
A61B 17/1735	. . . {for rasps or chisels}
A61B 17/1739	. . . {specially designed for particular parts of the body ( <a href="#">A61B 17/1703</a> takes precedence)}
A61B 17/1742	. . . . {for the hip}
A61B 17/1746	. . . . . {for the acetabulum}
A61B 17/175	. . . . . {for preparing the femur for hip prosthesis insertion}
A61B 17/1753	. . . . . {for fixing pins through femoral hip prostheses}
A61B 17/1757	. . . . {for the spine}
A61B 17/176	. . . . {for the jaw ( <a href="#">guiding dental drills A61C 1/082</a> )}
A61B 17/1764	. . . . {for the knee}
A61B 17/1767	. . . . . {for the patella}
A61B 2017/1771	. . . . {for the ear}
A61B 2017/1775	. . . . {for the foot or ankle}
A61B 2017/1778	. . . . {for the shoulder}

- A61B 2017/1782 . . . . {for the hand or wrist}
- A61B 2017/1785 . . . . {for the sinus or nose}
- A61B 2017/1789 . . . . {for the sternum}
- A61B 2017/1792 . . . . {for the ribs}
- A61B 17/1796 . . . {for holes for sutures or flexible wires}
- A61B 17/20 . for vaccinating or cleaning the skin previous to the vaccination (diagnosis by vaccination {other than by injuring the skin [A61B 10/0035](#)} ; apparatus for injections [A61M](#))

**NOTE**

Cleaning the skin previous to the vaccination is classified in [A61B 19/36](#)

- A61B 17/205 . . {Vaccinating by means of needles or other puncturing devices}
- A61B 17/22 . Implements for squeezing-off ulcers or the like on {the inside of} inner organs of the body; Implements for scraping-out cavities of body organs, e.g. bones; Calculus removers; Calculus smashing apparatus; {Apparatus for removing obstructions in blood vessels, not otherwise provided for ([dilators A61M 29/00](#))}
- A61B 2017/22001 . . {Angioplasty, e.g. PCTA}
- A61B 2017/22002 . . . {preventing restenosis}
- A61B 17/22004 . . {using mechanical vibrations, e.g. ultrasonic shock waves ([A61B 17/225 takes precedence](#))}
- A61B 2017/22005 . . . {Effects, e.g. on tissue}
- A61B 2017/22007 . . . . {Cavitation or pseudocavitation, i.e. creation of gas bubbles generating a secondary shock wave when collapsing}
- A61B 2017/22008 . . . . . {used or promoted}
- A61B 2017/22009 . . . . . {reduced or prevented}
- A61B 2017/22011 . . . . {Combined types of vibration, e.g. ultrasonic and electrohydraulic}
- A61B 17/22012 . . . {in direct contact with, or very close to, the obstruction or concrement (for removing obstructions in blood vessels by laser [A61B 18/245](#))}
- A61B 2017/22014 . . . . {the ultrasound transducer being outside patient's body; with an ultrasound transmission member; with a wave guide; with a vibrated guide wire (not applied in [A61B 17/22012](#))}
- A61B 2017/22015 . . . . . {with details of the transmission member}
- A61B 2017/22017 . . . . . {the ultrasonic transmitting members being fibres}
- A61B 2017/22018 . . . . . {segmented along its length}
- A61B 17/2202 . . . . {the ultrasound transducer being inside patient's body at the distal end of the catheter}
- A61B 2017/22021 . . . . . {electric leads passing through the catheter}
- A61B 17/22022 . . . . {using electric discharge}
- A61B 2017/22024 . . . . {with a part reflecting mechanical vibrations, e.g. for focusing}
- A61B 2017/22025 . . . . {applying a shock wave ([A61B 2017/22091 takes precedence](#))}
- A61B 2017/22027 . . . {Features of transducers}
- A61B 2017/22028 . . . . {arrays, e.g. phased arrays}
- A61B 17/22029 . . . {Means for measuring shock waves}



- A61B 17/22031 . . {Gripping instruments, e.g. forceps, for removing or smashing calculi  
([A61B 17/221](#) takes precedence)}
- A61B 17/22032 . . . {having inflatable gripping elements ([balloon catheters A61M 25/10](#))}
- A61B 2017/22034 . . . {for gripping the obstruction or the tissue part from inside}
- A61B 2017/22035 . . . {for retrieving or repositioning foreign objects}
- A61B 2017/22037 . . {Fecal impaction removal}
- A61B 2017/22038 . . {with a guide wire}
- A61B 2017/22039 . . . {eccentric}
- A61B 2017/22041 . . . {outside the catheter}
- A61B 2017/22042 . . . {Details of the tip of the guide wire}
- A61B 2017/22044 . . . . {with a pointed tip}
- A61B 2017/22045 . . . {fixed to the catheter; guiding tip}
- A61B 2017/22047 . . . {Means for immobilising the guide wire in the patient}
- A61B 2017/22048 . . . . {Balloons}
- A61B 2017/22049 . . . {Means for locking the guide wire in the catheter}
- A61B 2017/22051 . . {with an inflatable part, e.g. balloon, for positioning, blocking, or  
immobilisation ([A61B 2017/22048](#), [A61B 2017/3486](#) take precedence)}
- A61B 2017/22052 . . . {eccentric}
- A61B 2017/22054 . . . {with two balloons}
- A61B 2017/22055 . . . {with three or more balloons}
- A61B 2017/22057 . . . {Optical properties}
- A61B 2017/22058 . . . . {reflective}
- A61B 2017/22059 . . . . {transparent}
- A61B 2017/22061 . . . {for spreading elements apart}
- A61B 2017/22062 . . . {to be filled with liquid}
- A61B 2017/22064 . . . . {transparent liquid}
- A61B 2017/22065 . . . {Functions of balloons ([dilating A61M 29/02](#))}
- A61B 2017/22067 . . . . {Blocking; Occlusion ([A61B 2017/22054](#) takes precedence)}
- A61B 2017/22068 . . . . {Centering}
- A61B 2017/22069 . . . . {Immobilising; Stabilising}
- A61B 2017/22071 . . . . {Steering}
- A61B 2017/22072 . . {with an instrument channel, e.g. for replacing one instrument by the other  
([in cannulas A61B 17/3417](#))}
- A61B 2017/22074 . . . {the instrument being only slidable in a channel, e.g. advancing optical  
fibre through a channel}
- A61B 2017/22075 . . . . {with motorized advancing or retracting means}
- A61B 2017/22077 . . . . {with a part piercing the tissue ([A61B 2017/22044](#) takes precedence)}
- A61B 2017/22078 . . . {for rotating the instrument within a channel, e.g. an optical fibre}
- A61B 2017/22079 . . {with suction of debris}
- A61B 2017/22081 . . {Treatment of vulnerable plaque}
- A61B 2017/22082 . . {after introduction of a substance}

- A61B 2017/22084 . . . {stone- or thrombus-dissolving}
- A61B 2017/22085 . . . {light-absorbing ([A61B 2017/22087](#) takes precedence)}
- A61B 2017/22087 . . . {photodynamic}
- A61B 2017/22088 . . . {ultrasound absorbing, drug activated by ultrasound}
- A61B 2017/22089 . . . {Gas-bubbles}
- A61B 2017/22091 . . . {Explosive}
- A61B 2017/22092 . . . {Lubricant}
- A61B 2017/22094 . . {for crossing total occlusions, i.e. piercing}
- A61B 2017/22095 . . . {accessing a blood vessel true lumen from the sub-intimal space}
- A61B 2017/22097 . . {Valve removal in veins}
- A61B 2017/22098 . . {Decalcification of valves}
- A61B 17/221 . . . Gripping devices in the form of loops or baskets {for gripping calculi or similar types of obstructions ([surgical snare instruments A61B 17/32056](#))}
- A61B 2017/2212 . . . {having a closed distal end, e.g. a loop}
- A61B 2017/2215 . . . {having an open distal end}
- A61B 2017/2217 . . . {single wire changing shape to a gripping configuration}
- A61B 17/225 . . . for extracorporeal shock wave lithotripsy [ESWL], e.g. by using ultrasonic waves
- A61B 17/2251 . . . {characterised by coupling elements between the apparatus, e.g. shock wave apparatus or locating means, and the patient, e.g. details of bags, pressure control of bag on patient}
- A61B 2017/2253 . . . . {using a coupling gel or liquid}
- A61B 17/2255 . . . {Means for positioning patient, shock wave apparatus or locating means, e.g. mechanical aspects, patient beds, support arms, aiming means ([positioning of patients for radiation diagnosis A61B 6/04](#); [positioning of locating means inside shock wave apparatus A61B 17/2256](#))}
- A61B 17/2256 . . . {with means for locating or checking the concrement, e.g. X-ray apparatus, imaging means ([A61B 17/2255](#) takes precedence)}
- A61B 17/2258 . . . . {integrated in a central portion of the shock wave apparatus}
- A61B 17/24 . . . for use in the oral cavity, larynx, bronchial passages or nose ([for medical inspection of cavities or tubes in the body A61B 1/00](#)); Tongue scrapers
- A61B 2017/242 . . . {for bronchial passages}
- A61B 17/244 . . . {for cleaning of the tongue}
- A61B 2017/246 . . . {for cleaning of the nose}
- A61B 2017/248 . . . {Operations for treatment of snoring, e.g. uvulopalatoplasty}
- A61B 17/26 . . . Tonsillotomes, with or without means for stopping bleeding
- A61B 17/28 . . . Surgical forceps ({[for holding suture needles or materials A61B 17/0483](#); [for removing or smashing calculi A61B 17/221](#); [surgical scissors A61B 17/3201](#)} ; [obstetrical forceps A61B 17/44](#); [for inserting intraocular lenses A61F 2/1662](#); [hand-held gripping tools in general B25B 7/00](#) )}
- A61B 17/2804 . . . {with two or more pivotal connections ([A61B 17/29](#) takes precedence)}
- A61B 2017/2808 . . . {Clamp, e.g. towel clamp}
- A61B 17/2812 . . . {with a single pivotal connection ([A61B 17/29](#) takes precedence)}

A61B 17/2816	. . .	{Pivots}
A61B 17/282	. . .	{Jaws}
A61B 2017/2825	. . . .	{Inserts of different material in jaws}
A61B 2017/2829	. . . .	{with a removable cover}
A61B 17/2833	. . .	{Locking means}
A61B 2017/2837	. . . .	{with a locking ratchet}
A61B 17/2841	. . .	{Handles}
A61B 2017/2845	. . . .	{with a spring pushing the handle back}
A61B 17/285	. .	combined with cutting implements
A61B 17/29	. .	Forceps for use in minimally invasive surgery
A61B 2017/2901	. . .	{Details of shaft}
A61B 2017/2902	. . . .	{characterized by features of the actuating rod}
A61B 2017/2903	. . . . .	{transferring rotary motion}
A61B 2017/2904	. . . .	{curved, but rigid}
A61B 2017/2905	. . . .	{flexible}
A61B 2017/2906	. . . .	{Multiple forceps}
A61B 2017/2908	. . . .	{Multiple segments connected by articulations}
A61B 17/2909	. . .	{Handles}
A61B 2017/291	. . . .	{the position of the handle being adjustable with respect to the shaft}
A61B 2017/2911	. . . .	{rings}
A61B 2017/2912	. . . .	{transmission of forces to actuating rod or piston}
A61B 2017/2913	. . . . .	{cams or guiding means}
A61B 2017/2915	. . . . .	{arcuate shaped guiding means}
A61B 2017/2916	. . . . .	{pins in guiding slots}
A61B 2017/2917	. . . . .	{with flexible part}
A61B 2017/2918	. . . . .	{flexible handles}
A61B 2017/2919	. . . . .	{details of linkages or pivot points}
A61B 2017/292	. . . . .	{connection of actuating rod to handle, e.g. ball end in recess}
A61B 2017/2922	. . . . .	{toggle linkages}
A61B 2017/2923	. . . . .	{Toothed members, e.g. rack and pinion}
A61B 2017/2924	. . . . .	{Translation movement of handle without rotating movement}
A61B 2017/2925	. . . .	{Pistol grips}
A61B 2017/2926	. . .	{Details of heads or jaws}
A61B 2017/2927	. . . .	{the angular position of the head being adjustable with respect to the shaft}
A61B 2017/2929	. . . . .	{with a head rotatable about the longitudinal axis of the shaft}
A61B 2017/293	. . . . .	{with means preventing relative rotation between the shaft and the actuating rod}
A61B 2017/2931	. . . .	{with releasable head}
A61B 2017/2932	. . . .	{Transmission of forces to jaw members}

- A61B 2017/2933 . . . . . {camming or guiding means}
- A61B 2017/2934 . . . . . {arcuate shaped guiding means}
- A61B 2017/2936 . . . . . {Pins in guiding slots}
- A61B 2017/2937 . . . . . {with flexible part}
- A61B 2017/2938 . . . . . {Independently actuatable jaw members, e.g. two actuating rods}
- A61B 2017/2939 . . . . . {Details of linkages or pivot points}
- A61B 2017/294 . . . . . {Connection of actuating rod to jaw, e.g. releasable}
- A61B 2017/2941 . . . . . {Toggle linkages}
- A61B 2017/2943 . . . . . {Toothed members, e.g. rack and pinion}
- A61B 2017/2944 . . . . . {Translation of jaw members}
- A61B 2017/2945 . . . . . {Curved jaws}
- A61B 2017/2946 . . . . . {Locking means}
- A61B 2017/2947 . . . . . {Pivots}
- A61B 2017/2948 . . . . . {Sealing means, e.g. for sealing the interior from fluid entry}
- A61B 17/295 . . . . . combined with cutting implements
- A61B 17/30 . . . . . Surgical pincettes {without pivotal connections} ({for holding suture needles or materials [A61B 17/0483](#) ; wound clamps [A61B 17/08](#); {hand-held gripping tools without pivotal connections in general [B25B 9/02](#)})
- A61B 2017/301 . . . . . {with three legs}
- A61B 2017/303 . . . . . {with four or more legs}
- A61B 2017/305 . . . . . {Tweezer like handles with tubular extensions, inner slidable actuating members and distal tools, e.g. microsurgical instruments}
- A61B 2017/306 . . . . . {holding by means of suction}
- A61B 2017/308 . . . . . {with suction cups}
- A61B 17/32 . . . . . Surgical cutting instruments ({[A61B 18/042](#) takes precedence; suture cutters [A61B 17/0467](#); instruments for ligaturing or cutting [A61B 17/128](#); instruments for rupturing the amniotic membrane [A61B 17/4208](#); specially adapted knives for eye surgery [A61F 9/0133](#)})
- A61B 2017/320004 . . . . . {abrasive}
- A61B 2017/320008 . . . . . {Scrapers}
- A61B 2017/320012 . . . . . {Brushes}
- A61B 17/320016 . . . . . {Endoscopic cutting instruments e.g. arthroscopes, resectoscopes ([A61B 10/0233](#), [A61B 17/29](#), [A61B 17/3207](#) take precedence)}
- A61B 17/32002 . . . . . {with continuously rotating, oscillating or reciprocating cutting instruments}
- A61B 2017/320024 . . . . . {Morcellators, e.g. having a hollow cutting tube with an annular cutter for morcellating and removing tissue}
- A61B 2017/320028 . . . . . {with reciprocating movements}
- A61B 2017/320032 . . . . . {Details of the rotating or oscillating shaft, e.g. using a flexible shaft}
- A61B 17/320036 . . . . . {adapted for use within the carpal tunnel}
- A61B 2017/32004 . . . . . {having a laterally movable cutting member at its most distal end which remains within the contours of said end}

- A61B 2017/320044 . . {Blunt dissectors (blunt suture needles [A61B 2017/06085](#))}
- A61B 2017/320048 . . . {Balloon dissectors}
- A61B 2017/320052 . . {Guides for cutting instruments (by marking [A61B 2019/545](#))}
- A61B 2017/320056 . . {Tunnelers}
- A61B 2017/32006 . . {with a cutting strip, band or chain, e.g. like a chainsaw}
- A61B 2017/320064 . . {with tissue or sample retaining means}
- A61B 17/320068 . . {using mechanical vibrations, e.g. ultrasonic ([A61B 17/22012](#), [A61C 3/03](#) and [A61F 9/00745](#) take precedence)}
- A61B 2017/320072 . . . {Working tips with special features, e.g. extending parts}
- A61B 2017/320076 . . . . {Tissue manipulating surface}
- A61B 2017/32008 . . . . {preventing clogging of suction channel}
- A61B 2017/320084 . . . {Irrigation sleeves}
- A61B 2017/320088 . . . {with acoustic insulation, e.g. elements for damping vibrations between horn and surrounding sheath}
- A61B 17/320092 . . . {with additional movable means for clamping or cutting tissue, e.g. with a pivoting jaw}
- A61B 2017/320096 . . . {with transverse or torsional motion}
- A61B 17/3201 . . Scissors (for biopsy [A61B 10/02](#))
- A61B 17/3203 . . Fluid jet cutting instruments
- A61B 2017/32032 . . . {using cavitation of the fluid}
- A61B 2017/32035 . . . {with gas or air}
- A61B 17/32037 . . . {for removing obstructions from inner organs or blood vessels, e.g. for atherectomy}
- A61B 17/3205 . . Excision instruments
- A61B 17/32053 . . . {Punch like cutting instruments, e.g. using a cylindrical or oval knife ([A61B 17/326](#) takes precedence; trepans [A61B 17/1695](#); for use on the cornea [A61F 9/007](#))}
- A61B 17/32056 . . . {Surgical snare instruments (for removing or smashing calculi [A61B 2017/2212](#); tonsillotomes [A61B 17/26](#))}
- A61B 17/3207 . . . Atherectomy devices {working by cutting or abrading; Similar devices specially adapted for non-vascular obstructions ([A61B 17/32037](#) takes precedence; endoscopic cutting instruments [A61B 17/320016](#))}
- A61B 17/320708 . . . . {Curettes, e.g. hollow scraping instruments}
- A61B 2017/320716 . . . . {comprising means for preventing embolism by dislodged material}
- A61B 17/320725 . . . . {with radially expandable cutting or abrading elements ([A61B 17/32075](#) takes precedence)}
- A61B 2017/320733 . . . . {with a flexible cutting or scraping element, e.g. with a whip-like distal filament member}
- A61B 2017/320741 . . . . {for stripping the intima or the internal plaque from a blood vessel, e.g. for endarterectomy}
- A61B 17/32075 . . . . {Pullback cutting; combined forward and pullback cutting, e.g. with cutters at both sides of the plaque}

- A61B 17/320758 . . . . {with a rotating cutting instrument, e.g. motor driven ([A61B 17/320725](#), [A61B 17/32075](#) and [A61B 17/320783](#) take precedence; for removing intra-ocular material [A61F 9/00763](#); endoscopic rotatable cutting instruments [A61B 17/32002](#))}
- A61B 2017/320766 . . . . . {eccentric}
- A61B 2017/320775 . . . . . {Morcellators, impeller or propeller like means}
- A61B 17/320783 . . . . . {through side-hole, e.g. sliding or rotating cutter inside catheter}
- A61B 2017/320791 . . . . . {with cutter extending outside the cutting window}
- A61B 17/3209 . . . Incision instruments
- A61B 17/32093 . . . . {for skin incisions}
- A61B 2017/32096 . . . . {for slowly cutting through tissue, e.g. stent like temporary implants having sharp edges}
- A61B 17/3211 . . . . Surgical scalpels, knives; Accessories therefor
- A61B 2017/32113 . . . . . {with extendable or retractable guard or blade}
- A61B 2017/32116 . . . . . {with means for improving the rigidity of the blade, e.g. with a reinforcing rib}
- A61B 17/3213 . . . . . with detachable blade
- A61B 17/3215 . . . . . Packages or dispensers for scalpel blades {(for sharps [A61B 19/0262](#))}
- A61B 17/3217 . . . . . Devices for removing or collecting used scalpel blades {(for sharps [A61B 19/0288](#))}
- A61B 17/322 . . . . Skin grafting apparatus
- A61B 2017/3225 . . . . . {with processing of harvested tissue}
- A61B 17/326 . . . . Circumcision apparatus
- A61B 17/34 . . . . Trocars; Puncturing needles {(pointed biopsy instruments [A61B 10/0233](#); devices for piercing the ear-lobes [A44C 7/001](#); seals or hemostasis valves [A61M 39/06](#))}
- A61B 17/3401 . . . . {Puncturing needles for the peridural or subarachnoid space or the plexus, e.g. for anaesthesia (local anaesthesia [A61M 19/00](#))}
- A61B 17/3403 . . . . {Needle locating or guiding means (guides for suture needles [A61B 17/0482](#); guiding or tracking by nuclear magnetic resonance [G01R 33/285](#))}
- A61B 2017/3405 . . . . . {using mechanical guide means}
- A61B 2017/3407 . . . . . {including a base for support on the body}
- A61B 2017/3409 . . . . . {including needle or instrument drives}
- A61B 2017/3411 . . . . . {with a plurality of holes, e.g. holes in matrix arrangement}
- A61B 2017/3413 . . . . . {guided by ultrasound}
- A61B 17/3415 . . . . {for introducing tubes or catheters, e.g. gastrostomy tubes, drain catheters ([A61B 17/3417](#) takes precedence; body piercing catheter guide needles [A61M 25/06](#))}
- A61B 17/3417 . . . . {Details of tips or shafts, e.g. grooves, expandable, bendable; Multiple coaxial sliding cannulas, e.g. for dilating (syringe needles [A61M 5/32](#); dilators [A61M 29/00](#))}
- A61B 2017/3419 . . . . . {Sealing means between cannula and body}
- A61B 17/3421 . . . . . {Cannulas}



A61B 17/3423	. . . .	{Access ports, e.g. toroid shape introducers for instruments or hands (access sites for liquids <a href="#">A61M 39/0247</a> )}
A61B 2017/3425	. . . . .	{for internal organs, e.g. heart ports}
A61B 2017/3427	. . . . .	{for intercostal space}
A61B 2017/3429	. . . . .	{having a unitary compressible body, e.g. made of silicone or foam}
A61B 17/3431	. . . .	{being collapsible, e.g. made of thin flexible material ( <a href="#">A61B 17/3423</a> takes precedence)}
A61B 2017/3433	. . . .	{with different outer diameters of the cannula}
A61B 2017/3435	. . . .	{using everted sleeves}
A61B 2017/3437	. . . .	{with means for removing or absorbing fluid e.g. wicks or absorbent pads}
A61B 17/3439	. . . .	{with means for changing the inner diameter of the cannula, e.g. expandable ( <a href="#">A61B 17/3423</a> , <a href="#">A61B 17/3431</a> take precedence; catheters <a href="#">A61M 25/0662</a> )}
A61B 2017/3441	. . . . .	{with distal sealing means}
A61B 2017/3443	. . . . .	{with means for adjusting the length of a cannula}
A61B 2017/3445	. . . .	{used as instrument channel for multiple instruments (catheters <a href="#">A61B 2017/22072</a> )}
A61B 2017/3447	. . . . .	{Linked multiple cannulas}
A61B 2017/3449	. . . . .	{whereby the instrument channels merge into one single channel}
A61B 2017/345	. . . . .	{for introduction into a natural body opening}
A61B 2017/3452	. . . . .	{for the rectum, e.g. for hemorrhoid surgery}
A61B 2017/3454	. . . .	{Details of tips}
A61B 2017/3456	. . . . .	{blunt}
A61B 2017/3458	. . . . .	{threaded}
A61B 2017/346	. . . . .	{with wings}
A61B 17/3462	. .	{with means for changing the diameter or the orientation of the entrance port of the cannula, e.g. for use with different-sized instruments, reduction ports, adapter seals (expandable cannulas <a href="#">A61B 17/3417</a> )}
A61B 2017/3464	. . .	{with means acting on inner surface of valve or seal for expanding or protecting, e.g. inner pivoting fingers}
A61B 2017/3466	. . .	{for simultaneous sealing of multiple instruments}
A61B 17/3468	. .	{for implanting or removing devices, e.g. prostheses, implants, seeds, wires (devices for implanting seeds <a href="#">A61M 37/0069</a> )}
A61B 2017/347	. .	{Locking means, e.g. for locking instrument in cannula}
A61B 17/3472	. .	{for bones, e.g. intraosseous injections}
A61B 17/3474	. .	{Insufflating needles, e.g. Veress needles}
A61B 17/3476	. .	{Powered trocars, e.g. electrosurgical cutting, lasers, powered knives}
A61B 17/3478	. .	{Endoscopic needles, e.g. for infusion (biopsy needles <a href="#">A61B 10/0233</a> ; catheters with injection needles <a href="#">A61M 25/0067</a> )}
A61B 2017/348	. .	{Means for supporting the trocar against the body or retaining the trocar inside the body}
A61B 2017/3482	. . .	{inside}



- A61B 2017/3484 . . . . {Anchoring means, e.g. spreading-out umbrella-like structure}
- A61B 2017/3486 . . . . {Balloon}
- A61B 2017/3488 . . . . {Fixation to inner organ or inner body tissue}
- A61B 2017/349 . . . . {Trocars with thread on outside}
- A61B 2017/3492 . . . {against the outside of the body}
- A61B 17/3494 . . {with safety means for protection against accidental cutting or pricking, e.g. limiting insertion depth, pressure sensors (for the peridural space [A61B 17/3401](#))}
- A61B 17/3496 . . . {Protecting sleeves or inner probes; Retractable tips (for protecting body piercing guide needles [A61M 25/0612](#))}
- A61B 17/3498 . . {Valves therefor, e.g. flapper valves, slide valves (haemostasis valves [A61M 39/06](#); check valves [A61M 39/24](#))}
- A61B 17/42 . Gynaecological or obstetrical instruments or methods ({ligaturing clamps or clips for the umbilical cord [A61B 17/122](#); curettage [A61B 17/3207](#) ; dilators [A61M 29/00](#))}
- A61B 17/4208 . . {Instruments for rupturing the amniotic membrane}
- A61B 2017/4216 . . {Operations on uterus, e.g. endometrium}
- A61B 2017/4225 . . . {Cervix uteri}
- A61B 2017/4233 . . {Operations on Fallopian tubes, e.g. sterilization ([A61B 2017/1125](#) takes precedence)}
- A61B 17/4241 . . {Instruments for manoeuvring or retracting the uterus, e.g. during laparoscopic surgery}
- A61B 17/425 . . for reproduction or fertilisation (specially adapted for use with animals [A61D 19/00](#) ) {(not used, see subgroups)}
- A61B 17/43 . . . for artificial insemination
- A61B 17/435 . . . for embryo {or ova} transplantation
- A61B 17/44 . . Obstetrical forceps
- A61B 17/442 . . . {without pivotal connections, e.g. using vacuum}
- A61B 2017/445 . . . {with force indication}
- A61B 2017/447 . . . {with force limitation}
- A61B 17/46 . . Embryotomes (for animals [A61D 1/10](#))
- A61B 17/48 . . Bags for midwives
- A61B 17/50 . Instruments, other than pincettes or toothpicks, for removing foreign bodies from the human body (locating otherwise [A61B 5/06](#); locating by radiation [A61B 6/00](#); {removing calculi [A61B 17/22](#); from the eyes [A61F 9/00709](#)})
- A61B 2017/505 . . {Parasite, e.g. tick, removers}
- A61B 17/52 . . Magnets
- A61B 17/54 . Chiropractors' instruments, {e.g. pedicure (chiropractic devices [A61H 1/008](#))}
- A61B 17/545 . . {using a stream or spray of abrasive particles}
- A61B 17/56 . Surgical instruments or methods for treatment of bones or joints; Devices specially adapted therefor ({orthopaedic methods or devices for non-surgical treatment of bones or joints [A61F 5/00](#)})

**NOTES**

## A61B 17/56

(continued)

1. Documents concerning exclusively surgical methods are classified only in this group.
2. Surgical instruments or devices are classified only in the relevant subgroups

A61B 2017/561

- . . {Implants with special means for releasing a drug}

A61B 17/562

- . . {Implants for placement in joint gaps without restricting joint motion, e.g. to reduce arthritic pain}

A61B 2017/564

- . . {Methods for bone or joint treatment}

A61B 2017/565

- . . . {for surgical correction of axial deviation, e.g. hallux valgus or genu valgus}

A61B 2017/567

- . . {Joint mechanisms or joint supports in addition to the natural joints and outside the joint gaps}

A61B 2017/568

- . . {produced with shape and dimensions specific for an individual patient}

A61B 17/58

- . . for osteosynthesis, e.g. bone plates, screws, {setting implements} or the like ([A61B 17/14](#), [A61B 17/16](#) take precedence; {splints [A61B 5/01](#); traction bandages [A61F 13/10](#)})

A61B 17/60

- . . . for external osteosynthesis, e.g. distractors, contractors

A61B 2017/603

- . . . . {with three points of contact, e.g. tripod}

A61B 2017/606

- . . . . {with resilient spring element}

A61B 17/62

- . . . . Ring frames, i.e. devices extending around the bones to be positioned ({[A61B 17/6433](#) , [A61B 17/66](#) take precedence)

A61B 17/64

- . . . . Devices extending alongside the bones to be positioned {(not used, see subgroups and [A61B 17/60](#))}

A61B 17/6408

- . . . . . {Devices not permitting mobility, e.g. fixed to bed, with or without means for traction or reduction ([without surgery A61F 5/04](#))}

A61B 17/6416

- . . . . . {with non-continuous, e.g. hinged, pin-clamp connecting element ([A61B 17/6425](#), [A61B 17/6441](#) take precedence)}

A61B 17/6425

- . . . . . {specially adapted to be fitted across a bone joint}

A61B 17/6433

- . . . . . {specially adapted for use on body parts other than limbs, e.g. trunk or head}

A61B 17/6441

- . . . . . {Bilateral fixators, i.e. with both ends of pins or wires clamped}

A61B 17/645

- . . . . . {comprising a framework ([A61B 17/6425](#), [A61B 17/6441](#) take precedence)}

A61B 17/6458

- . . . . . {with pin-clamps fixed at ends of connecting element}

A61B 17/6466

- . . . . . {with pin-clamps movable along a solid connecting rod}

A61B 17/6475

- . . . . . . {the connecting rod being threaded}

A61B 17/6483

- . . . . . . {the connecting rod having a non-circular section}

A61B 17/6491

- . . . . . . {allowing small-scale motion of bone ends}

A61B 17/66

- . . . . . {Alignment}, compression or distraction mechanisms

A61B 17/663

- . . . . . {for jaw bones, e.g. subcutaneous distractors with external access ([periodontal bone regeneration A61C 8/0006](#))}

A61B 17/666

- . . . . . . {for alveolar distraction}

- A61B 17/68 . . . Internal fixation devices, {including fasteners and spinal fixators, even if a part thereof projects from the skin ([bone staples A61B 17/0642](#); [dental regeneration membranes A61C 8/0006](#))}
- WARNING**
- Subgroups [A61B 17/686](#) and [A61B 17/688](#) are not complete pending a reorganisation. See also [A61B 17/68](#), [A61B 17/683](#) and [A61B 17/86](#)
- A61B 2017/681 . . . . {Alignment, compression, or distraction mechanisms}
- A61B 17/683 . . . . {comprising bone transfixation elements, e.g. bolt with a distal cooperating element such as a nut}
- A61B 17/685 . . . . {Elements to be fitted on the end of screws or wires, e.g. protective caps}
- A61B 17/686 . . . . {Plugs, i.e. elements forming interface between bone hole and implant or fastener, e.g. screw}
- A61B 17/688 . . . . {for reattaching pieces of the skull}
- A61B 17/70 . . . . Spinal positioners or stabilisers; {Bone stabilisers comprising fluid filler in an implant}
- A61B 17/7001 . . . . . {Screws or hooks combined with longitudinal elements which do not contact vertebrae ([A61B 17/7058](#) takes precedence)}
- A61B 17/7002 . . . . . . {Longitudinal elements, e.g. rods}
- A61B 17/7004 . . . . . . . {with a cross-section which varies along its length ([A61B 17/7019](#) takes precedence)}
- A61B 17/7005 . . . . . . . . {Parts of the longitudinal elements, e.g. their ends, being specially adapted to fit in the screw or hook heads}
- A61B 17/7007 . . . . . . . . {Parts of the longitudinal elements, e.g. their ends, being specially adapted to fit around the screw or hook heads}
- A61B 17/7008 . . . . . . . . {with parts of, or attached to, the longitudinal elements, bearing against an outside of the screw or hook heads, e.g. nuts on threaded rods ([A61B 17/7007](#) takes precedence)}
- A61B 17/701 . . . . . . . {Longitudinal elements with a non-circular, e.g. rectangular, cross-section ([A61B 17/7005](#), [A61B 17/7007](#) take precedence)}
- A61B 17/7011 . . . . . . . {Longitudinal element being non-straight, e.g. curved, angled or branched ([adjustable length longitudinal elements A61B 17/7014](#); [A61B 17/7019](#) takes precedence, e.g. coil springs)}
- A61B 17/7013 . . . . . . . . {the shape of the element being adjustable before use ([adjustable length plates A61B 17/7014](#))}
- A61B 17/7014 . . . . . . . . {with means for adjusting the distance between two screws or hooks}
- A61B 17/7016 . . . . . . . . {electric or electromagnetic means}
- A61B 17/7017 . . . . . . . . {pneumatic or hydraulic means}
- A61B 17/7019 . . . . . . . . {Longitudinal elements having flexible parts, or parts connected together, such that after implantation the elements can move relative to each other}

A61B 17/702	. . . . .	{having a core or insert, and a sleeve, whereby a screw or hook can move along the core or in the sleeve}
A61B 17/7022	. . . . .	{Tethers, i.e. longitudinal elements capable of transmitting tension only, e.g. cables, sutures}
A61B 17/7023	. . . . .	{with a pivot joint}
A61B 17/7025	. . . . .	{with a sliding joint}
A61B 17/7026	. . . . .	{with a part that is flexible due to its form}
A61B 17/7028	. . . . .	{the flexible part being a coil spring}
A61B 17/7029	. . . . .	{the entire longitudinal element being flexible}
A61B 17/7031	. . . . .	{made wholly or partly of flexible material}
A61B 17/7032	. . . . .	{Screws or hooks with U-shaped head or back through which longitudinal rods pass}
A61B 17/7034	. . . . .	{characterised by a lateral opening}
A61B 17/7035	. . . . .	{Screws or hooks, wherein a rod-clamping part and a bone-anchoring part can pivot relative to each other}
A61B 17/7037	. . . . .	{wherein pivoting is blocked when the rod is clamped}
A61B 17/7038	. . . . .	{to a different extent in different directions, e.g. within one plane only}
A61B 17/704	. . . . .	{the longitudinal element passing through a ball-joint in the screw head}
A61B 17/7041	. . . . .	{with single longitudinal rod offset laterally from single row of screws or hooks ( <a href="#">A61B 17/7044</a> takes precedence)}
A61B 17/7043	. . . . .	{with a longitudinal element fixed to one or more transverse elements which connect multiple screws or hooks}
A61B 17/7044	. . . . .	{also having plates, staples or washers bearing on the vertebrae}
A61B 17/7046	. . . . .	{the screws or hooks being mobile in use relative to the longitudinal element ( <a href="#">A61B 17/7035</a> takes precedence)}
A61B 17/7047	. . . . .	{Clamps comprising opposed elements which grasp one vertebra between them}
A61B 17/7049	. . . . .	{Connectors, not bearing on the vertebrae, for linking longitudinal elements together ( <a href="#">A61B 17/7055</a> , <a href="#">A61B 17/7053</a> , <a href="#">A61B 17/7019</a> take precedence)}
A61B 17/705	. . . . .	{for linking adjacent ends of longitudinal elements}
A61B 17/7052	. . . . .	{of variable angle or length}
A61B 17/7053	. . . . .	{attached by wires, straps, sutures or cables}
A61B 17/7055	. . . . .	{connected to sacrum, pelvis or skull}
A61B 17/7056	. . . . .	{Hooks with specially-designed bone-contacting part}
A61B 17/7058	. . . . .	{Plates mounted on top of bone anchor heads or shoulders}
A61B 17/7059	. . . . .	{Cortical plates}
A61B 17/7061	. . . . .	{for stabilising vertebrae or discs by improving the condition of their tissues, e.g. using implanted medication or fluid exchange ( <a href="#">intraosseous injection devices</a> <a href="#">A61B 17/3472</a> )}

A61B 17/7062	. . . . .	{Devices acting on, attached to, or simulating the effect of, vertebral processes, vertebral facets or ribs ( <a href="#">rib fixation devices A61B 17/8076</a> ); Tools for such devices}
A61B 17/7064	. . . . .	{Devices acting on, attached to, or simulating the effect of, vertebral facets; Tools therefor}
A61B 17/7065	. . . . .	{Devices with changeable shape, e.g. collapsible or having retractable arms to aid implantation; Tools therefor}
A61B 17/7067	. . . . .	{Devices bearing against one or more spinous processes and also attached to another part of the spine; Tools therefor}
A61B 17/7068	. . . . .	{Devices comprising separate rigid parts, assembled in situ, to bear on each side of spinous processes; Tools therefor}
A61B 17/707	. . . . .	{Devices acting on, or attached to, a transverse process or rib; Tools therefor}
A61B 17/7071	. . . . .	{Implants for expanding or repairing the vertebral arch or wedged between laminae or pedicles; Tools therefor}
A61B 2017/7073	. . . . .	{with intervertebral connecting element crossing an imaginary spinal median surface}
A61B 17/7074	. . . . .	{Tools specially adapted for spinal fixation operations other than for bone removal or filler handling ( <a href="#">A61B 17/7062</a> , <a href="#">A61B 17/808</a> , <a href="#">A61B 17/8858</a> take precedence; for spinal image producing devices <a href="#">A61B 19/52</a> ; markers <a href="#">A61B 19/54</a> )}
A61B 17/7076	. . . . .	{for driving, positioning or assembling spinal clamps or bone anchors specially adapted for spinal fixation}
A61B 17/7077	. . . . .	{for moving bone anchors attached to vertebrae, thereby displacing the vertebrae}
A61B 17/7079	. . . . .	{Tools requiring anchors to be already mounted on an implanted longitudinal or transverse element, e.g. where said element guides the anchor motion}
A61B 17/708	. . . . .	{with tubular extensions coaxially mounted on the bone anchors}
A61B 17/7082	. . . . .	{for driving, i.e. rotating, screws or screw parts specially adapted for spinal fixation, e.g. for driving polyaxial or tulip-headed screws ( <a href="#">driving other bone screws A61B 17/8875</a> )}
A61B 17/7083	. . . . .	{Tools for guidance or insertion of tethers, rod-to-anchor connectors, rod-to-rod connectors, or longitudinal elements}
A61B 17/7085	. . . . .	{for insertion of a longitudinal element down one or more hollow screw or hook extensions, i.e. at least a part of the element within an extension has a component of movement parallel to the extension's axis}
A61B 17/7086	. . . . .	{Rod reducers, i.e. devices providing a mechanical advantage to allow a user to force a rod into or onto an anchor head other than by means of a rod-to-bone anchor locking element; rod removers}
A61B 17/7088	. . . . .	{wherein the rod is moved transverse to the axis of the bone anchor}
A61B 17/7089	. . . . .	{wherein insertion is along an arcuate path}

A61B 17/7091	. . . . .	{for applying, tightening or removing longitudinal element-to-bone anchor locking elements, e.g. caps, set screws, nuts or wedges}
A61B 17/7092	. . . . .	{for checking pedicle hole has correct depth or has an intact wall (pedicle drill depth limiters <a href="#">A61B 17/1626</a> )}
A61B 17/7094	. . . . .	{Solid vertebral fillers; devices for inserting such fillers}
A61B 17/7095	. . . . .	{the filler comprising unlinked macroscopic particles}
A61B 17/7097	. . . . .	{Stabilisers comprising fluid filler in an implant, e.g. balloon; devices for inserting or filling such implants (disc prostheses made of inflatable chambers or pockets filled with fluid <a href="#">A61F 2/441</a> ; replacing the nucleus pulposus <a href="#">A61F 2002/444</a> )}
A61B 17/7098	. . . . .	{wherein the implant is permeable or has openings, e.g. fenestrated screw (hollow surgical screws <a href="#">A61B 17/864</a> )}
A61B 17/72	. . . . .	Intramedullary {pins, nails or other} devices {( <a href="#">A61B 17/744</a> takes precedence)}
A61B 17/7208	. . . . .	{Flexible pins, e.g. ENDER pins}
A61B 17/7216	. . . . .	{for bone lengthening or compression ( <a href="#">A61B 17/7258</a> takes precedence)}
A61B 17/7225	. . . . .	{for bone compression}
<b><u>WARNING</u></b>		
Not complete, see also <a href="#">A61B 17/7216</a>		
A61B 17/7233	. . . . .	{with special means of locking the nail to the bone}
A61B 17/7241	. . . . .	{the nail having separate elements through which screws pass}
A61B 17/725	. . . . .	{with locking pins or screws of special form}
A61B 17/7258	. . . . .	{with laterally expanding parts, e.g. for gripping the bone}
A61B 17/7266	. . . . .	{with fingers moving radially outwardly}
A61B 17/7275	. . . . .	{with expanding cylindrical parts}
A61B 17/7283	. . . . .	{with special cross-section of the nail}
A61B 17/7291	. . . . .	{for small bones, e.g. in the foot, ankle, hand or wrist}
A61B 17/74	. . . . .	Devices for the head {or neck or trochanter} of the femur {(trochanteric devices connected to the proximal part of an endoprosthetic femoral shaft <a href="#">A61F 2/30739</a> ; endoprosthetic internal fixation devices for the head or neck of the femur <a href="#">A61F 2/3601</a> )}
A61B 17/742	. . . . .	{having one or more longitudinal elements oriented along or parallel to the axis of the neck}
A61B 17/744	. . . . .	{the longitudinal elements coupled to an intramedullary nail}
A61B 17/746	. . . . .	{the longitudinal elements coupled to a plate opposite the femoral head}
A61B 17/748	. . . . .	{with means for adapting the angle between the longitudinal elements and the shaft axis of the femur}
A61B 17/80	. . . . .	Cortical plates {, i.e. bone plates; Instruments for holding or positioning cortical plates, or for compressing bones attached to cortical plates}
A61B 17/8004	. . . . .	{with means for extending or compressing the bone or bones}

A61B 17/8009	. . . . .	{the plate having a ratchet}
A61B 17/8014	. . . . .	{the extension or compression force being caused by interaction of the plate hole and the screws}
A61B 17/8019	. . . . .	{where the means are a separate tool rather than being part of the plate}
A61B 17/8023	. . . . .	{Variable length plates}
A61B 17/8028	. . . . .	{Cushions, i.e. elements forming interface between bone plate and bone}
A61B 17/8033	. . . . .	{having indirect contact with screw heads, or having contact with screw heads maintained with the aid of additional components, e.g. nuts, wedges or head covers}
A61B 17/8038	. . . . .	{the additional component being inserted in the screw head}
A61B 17/8042	. . . . .	{the additional component being a cover over the screw head}
A61B 17/8047	. . . . .	{wherein the additional element surrounds the screw head in the plate hole}
A61B 17/8052	. . . . .	{immobilised relative to screws by interlocking form of the heads and plate holes, e.g. conical or threaded}
A61B 17/8057	. . . . .	{the interlocking form comprising a thread}
A61B 17/8061	. . . . .	{specially adapted for particular bones ( <a href="#">A61B 17/70</a> and <a href="#">A61B 17/74</a> take precedence)}
A61B 17/8066	. . . . .	{for pelvic reconstruction}
A61B 17/8071	. . . . .	{for the jaw (prostheses for mandibular reconstruction <a href="#">A61F 2/2803</a> )}
A61B 17/8076	. . . . .	{for the ribs or the sternum}
A61B 17/808	. . . . .	{Instruments for holding or positioning bone plates, or for adjusting screw-to-plate locking mechanisms}
A61B 17/8085	. . . . .	{with pliable or malleable elements or having a mesh-like structure, e.g. small strips for craniofacial surgery ( <a href="#">A61B 17/8071</a> , <a href="#">A61B 17/8076</a> take precedence; connecting prostheses with the body <a href="#">A61F 2/00</a> )}
A61B 17/809	. . . . .	{with bone-penetrating elements, e.g. blades or prongs (bone staples <a href="#">A61B 17/0642</a> )}
A61B 17/8095	. . . . .	{Wedge osteotomy devices}
A61B 17/82	. . . . .	for bone cerclage {(apparatus for manipulating wires or straps <a href="#">A61B 17/8861</a> ; wires, bands or straps other than cerclage <a href="#">A61B 17/842</a> )}
A61B 17/823	. . . . .	{for the sternum}
A61B 17/826	. . . . .	{Nets or webs}

**WARNING**

Not complete, see also [A61B 17/68](#) and [A61B 17/82](#)

A61B 17/84	. . . . .	Fasteners therefor {or fasteners being internal fixation devices}
A61B 17/842	. . . . .	{Flexible wires, bands or straps ( <a href="#">A61B 17/72</a> , <a href="#">A61B 17/82</a> , <a href="#">A61B 17/86</a> take precedence)}
A61B 17/844	. . . . .	{with expandable anchors or anchors having movable parts}



A61B 17/846 . . . . . {Nails or pins, i.e. anchors without movable parts, holding by friction only, with or without structured surface ([A61B 17/72](#), [A61B 17/86](#) take precedence)}

A61B 17/848 . . . . . {Kirschner wires, i.e. thin, long nails}

A61B 17/86 . . . . . {Threaded wires}, pins or screws; {Nuts therefor ([A61B 17/72](#), [A61B 17/74](#), [A61F 2/4455](#) take precedence)}

#### **WARNING**

Subgroups [A61B 17/861](#), [A61B 17/865](#), [A61B 17/8665](#), [A61B 17/869](#) and [A61B 17/8695](#) are not complete pending a reorganisation. See also [A61B 17/68](#), [A61B 17/86](#), [A61B 17/8605](#) and [A61B 19/026](#)

A61B 17/8605 . . . . . {Heads, i.e. proximal ends projecting from bone}

A61B 17/861 . . . . . {specially shaped for gripping driver}

A61B 17/8615 . . . . . {at the central region of the screw head}

A61B 17/862 . . . . . {at the periphery of the screw head}

A61B 17/8625 . . . . . {Shanks, i.e. parts contacting bone tissue (screw-in dental implants [A61C 8/0018](#))}

A61B 17/863 . . . . . {with thread interrupted or changing its form along shank, other than constant taper}

A61B 17/8635 . . . . . {Tips of screws}

A61B 17/864 . . . . . {hollow, e.g. with socket or cannulated}

A61B 17/8645 . . . . . {Headless screws, e.g. ligament interference screws}

A61B 17/865 . . . . . {Packages or dispensers for bone screws or threaded wires}

A61B 2017/8655 . . . . . {with special features for locking in the bone}

A61B 17/866 . . . . . {Material or manufacture}

A61B 17/8665 . . . . . {Nuts}

A61B 2017/867 . . . . . {with integral locking or clamping means}

A61B 2017/8675 . . . . . {clamping effect due to tapering, e.g. conical thread}

A61B 2017/868 . . . . . {self-locking due to part of nut being deformed upon tightening}

A61B 17/8685 . . . . . {comprising multiple separate parts}

A61B 17/869 . . . . . {characterised by an open form, e.g. wire helix}

A61B 17/8695 . . . . . {Washers (surrounding screw head in plate hole [A61B 17/8047](#), between bone plate and bone [A61B 17/8028](#))}

A61B 17/88 . . . . . {Osteosynthesis instruments;} Methods or means for implanting or extracting internal {or external} fixation devices

A61B 17/8802 . . . . . {Equipment for handling bone cement or other fluid fillers (plugs or restrictors for bone cement [A61F 2/30723](#))}

A61B 17/8805 . . . . . {for introducing fluid filler into bone or extracting it ([A61B 17/7097](#), [A61B 17/8833](#) take precedence; for introducing bone graft [A61F 2/4601](#))}

A61B 17/8808 . . . . . {with sealing collar for bone cavity}

A61B 17/8811 . . . . . {characterised by the introducer tip, i.e. the part inserted into or onto the bone}

A61B 2017/8813	. . . . .	{Discharging means for excessively introduced fluid fillers, e.g. discharging excess cement}
A61B 17/8816	. . . . .	{characterised by the conduit, e.g. tube, along which fluid flows into the body or by conduit connections}
A61B 17/8819	. . . . .	{characterised by the introducer proximal part, e.g. cannula handle, or by parts which are inserted inside each other, e.g. stylet and cannula ( <a href="#">A61B 17/8825</a> takes precedence)}
A61B 17/8822	. . . . .	{characterised by means facilitating expulsion of fluid from the introducer, e.g. a screw pump plunger, hydraulic force transmissions, application of vibrations or a vacuum}
A61B 17/8825	. . . . .	{characterised by syringe details ( <a href="#">A61B 17/8822</a> , <a href="#">A61B 17/8827</a> take precedence)}
A61B 17/8827	. . . . .	{with filtering, degassing, venting or pressure relief means}
A61B 2017/883	. . . . .	{Means for indicating hardening of bone cement}
A61B 17/8833	. . . . .	{Tools for preparing, e.g. curing, cement or other fluid fillers ( <a href="#">B01F</a> takes precedence); Means for supplying cement or other fluid fillers to an introducing tool, e.g. cartridge handling means}
A61B 17/8836	. . . . .	{for heating, cooling or curing the filler}
A61B 2017/8838	. . . . .	{for mixing, with or without means for supplying the mixed filler to an injecting tool}
A61B 17/8841	. . . . .	{Tools specially adapted to engage a prosthesis}
A61B 2017/8844	. . . . .	{Means for determining the viscosity of bone cement}
A61B 17/8847	. . . . .	{for removing cement from a bone cavity (using surgical bone chisels, drills, mills, rasps, reamers or scrapers <a href="#">A61B 17/16</a> ; using laser <a href="#">A61B 18/20</a> ; using ultrasonic surgical instruments <a href="#">A61N 7/00</a> )}
A61B 17/885	. . . . .	{Tools for expanding or compacting bones or discs or cavities therein ( <a href="#">A61B 17/8805</a> , <a href="#">A61B 17/7097</a> take precedence)}
A61B 17/8852	. . . . .	{capable of being assembled or enlarged, or changing shape, inside the bone or disc}
A61B 17/8855	. . . . .	{inflatable, e.g. kyphoplasty balloons}
A61B 17/8858	. . . . .	{laterally or radially expansible ( <a href="#">inflatable A61B 17/8855</a> )}
A61B 17/8861	. . . . .	{Apparatus for manipulating flexible wires or straps}
A61B 17/8863	. . . . .	{Apparatus for shaping or cutting osteosynthetic equipment}
A61B 17/8866	. . . . .	{for gripping or pushing bones, e.g. approximators}
A61B 17/8869	. . . . .	{Tensioning devices}
A61B 17/8872	. . . . .	{Instruments for putting said fixation devices against or away from the bone ( <a href="#">A61B 17/7074</a> , <a href="#">A61B 17/808</a> take precedence)}
A61B 17/8875	. . . . .	{Screwdrivers, spanners or wrenches}
A61B 17/8877	. . . . .	{characterised by the cross-section of the driver bit}
A61B 17/888	. . . . .	{the driver bit acting on the central region of the screw head}
A61B 17/8883	. . . . .	{the driver bit acting on the periphery of the screw head}
A61B 17/8886	. . . . .	{holding the screw head}
A61B 17/8888	. . . . .	{at its central region}
A61B 17/8891	. . . . .	{at its periphery}

A61B 17/8894 . . . . . {holding the implant into or through which the screw is to be inserted ([A61B 17/7082](#), [A61B 17/7091](#) take precedence)}

A61B 17/8897 . . . . . {Guide wires or guide pins}

### **WARNING**

Not complete, see also [A61B 17/88](#)

A61B 2017/90 . . . . . {Guides therefor}

A61B 17/92 . . . . . Impactors or extractors, e.g. for removing intramedullary devices  
{(insertion or extraction of artificial joints [A61F 2/4603](#))}

A61B 17/921 . . . . . {for intramedullary devices}

A61B 2017/922 . . . . . {Devices for impaction, impact element}

A61B 2017/924 . . . . . {Impact element driving means}

A61B 2017/925 . . . . . {a spring}

A61B 2017/927 . . . . . {Returning means}

A61B 2017/928 . . . . . {a spring}

### **A61B 18/00**

**Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body** ([eye surgery A61F 9/007](#); [ear surgery A61F 11/00](#))

A61B 2018/00005 . . {Cooling or heating of the probe or tissue immediately surrounding the probe}

A61B 2018/00011 . . {with fluids}

A61B 2018/00017 . . . {with gas}

A61B 2018/00023 . . . {closed, i.e. without wound contact by the fluid}

A61B 2018/00029 . . . {open}

A61B 2018/00035 . . . . {with return means}

A61B 2018/00041 . . {Heating, e.g. defrosting}

A61B 2018/00047 . . {using Peltier effect}

A61B 2018/00053 . {Mechanical features of the instrument or device}

A61B 2018/00059 . . {Material properties}

A61B 2018/00065 . . . {porous}

A61B 2018/00071 . . . {Electrical conductivity}

A61B 2018/00077 . . . . {high, i.e. electrically conducting}

A61B 2018/00083 . . . . {low, i.e. electrically insulating}

A61B 2018/00089 . . . {Thermal conductivity}

A61B 2018/00095 . . . . {high, i.e. heat conducting}

A61B 2018/00101 . . . . {low, i.e. thermally insulating}

A61B 2018/00107 . . {Coatings on the energy applicator}

A61B 2018/00113 . . . {with foam}

A61B 2018/00119 . . . {with metal oxide nitride}

A61B 2018/00125 . . . {with nano structure}

A61B 2018/0013 . . . {non-sticking}

A61B 2018/00136 . . . {with polymer}

A61B 2018/00142	. . .	{lubricating}
A61B 2018/00148	. . .	{with metal}
A61B 2018/00154	. . .	{containing and delivering drugs}
A61B 2018/0016	. .	{Energy applicators arranged in a two- or three dimensional array}
A61B 2018/00166	. .	{Multiple lumina}
A61B 2018/00172	. .	{Connectors and adapters therefor}
A61B 2018/00178	. . .	{Electrical connectors}
A61B 2018/00184	. .	{Moving parts}
A61B 2018/0019	. . .	{vibrating}
A61B 2018/00196	. . .	{reciprocating lengthwise}
A61B 2018/00202	. . .	{rotating}
A61B 2018/00208	. . . .	{actively driven, e.g. by a motor}
A61B 2018/00214	. .	{Expandable means emitting energy, e.g. by elements carried thereon}
A61B 2018/0022	. . .	{Balloons}
A61B 2018/00226	. . . .	{extending from a surface, i.e. Blisters}
A61B 2018/00232	. . . .	{having an irregular shape}
A61B 2018/00238	. . . .	{porous}
A61B 2018/00244	. . . .	{adapted to separate target tissue from other tissue}
A61B 2018/0025	. . . .	{Multiple balloons}
A61B 2018/00255	. . . . .	{arranged one inside another}
A61B 2018/00261	. . . . .	{arranged in a line}
A61B 2018/00267	. . .	{having a basket shaped structure}
A61B 2018/00273	. .	{Anchoring means for temporary attachment of a device to tissue}
A61B 2018/00279	. . .	{deployable}
A61B 2018/00285	. . . .	{Balloons}
A61B 2018/00291	. . .	{using suction}
A61B 2018/00297	. .	{Means for providing haptic feedback}
A61B 2018/00303	. . .	{active, e.g. with a motor creating vibrations}
A61B 2018/00309	. . .	{passive, e.g. palpable click when activating a button}
A61B 2018/00315	. .	{for treatment of particular body parts}
A61B 2018/00321	. .	{Head or parts thereof}
A61B 2018/00327	. . .	{Ear, nose or throat}
A61B 2018/00333	. .	{Breast}
A61B 2018/00339	. .	{Spine, e.g. intervertebral disc}
A61B 2018/00345	. .	{Vascular system}
A61B 2018/00351	. . .	{Heart}
A61B 2018/00357	. . . .	{Endocardium}
A61B 2018/00363	. . . .	{Epicardium}
A61B 2018/00369	. . . .	{Heart valves}
A61B 2018/00375	. . . .	{Ostium, e.g. ostium of pulmonary vein or artery}

A61B 2018/0038	. . . . {Foramen ovale}
A61B 2018/00386	. . . . {Coronary vessels}
A61B 2018/00392	. . . . {Transmyocardial revascularisation}
A61B 2018/00398	. . . {Blood}
A61B 2018/00404	. . . {Blood vessels other than those in or around the heart}
A61B 2018/0041	. . . . {Removal of thrombosis}
A61B 2018/00416	. . . . {Treatment of aneurisms}
A61B 2018/00422	. . . . {Angioplasty}
A61B 2018/00428	. . . . {Severing}
A61B 2018/00434	. . {Neural system}
A61B 2018/0044	. . . {Spinal chord}
A61B 2018/00446	. . . {Brain}
A61B 2018/00452	. . {Skin}
A61B 2018/00458	. . . {Deeper parts of the skin, e.g. treatment of vascular disorders or port wine stains}
A61B 2018/00464	. . . . {Subcutaneous fat, e.g. liposuction, lipolysis}
A61B 2018/0047	. . . {Upper parts of the skin, e.g. skin peeling or treatment of wrinkles}
A61B 2018/00476	. . . {Hair follicles}
A61B 2018/00482	. . {Digestive system}
A61B 2018/00488	. . . {Esophagus}
A61B 2018/00494	. . . {Stomach, intestines or bowel}
A61B 2018/005	. . . {Rectum}
A61B 2018/00505	. . {Urinary tract}
A61B 2018/00511	. . . {Kidney}
A61B 2018/00517	. . . {Urinary bladder or urethra}
A61B 2018/00523	. . . {Treatment of incontinence}
A61B 2018/00529	. . {Liver}
A61B 2018/00535	. . . {Biliary tract}
A61B 2018/00541	. . {Lung or bronchi}
A61B 2018/00547	. . {Prostate}
A61B 2018/00553	. . {Sphincter}
A61B 2018/00559	. . {Female reproductive organs}
A61B 2018/00565	. . {Bone}
A61B 2018/00571	. {for achieving a particular surgical effect}
A61B 2018/00577	. . {Ablation}
A61B 2018/00583	. . . {Coblation, i.e. ablation using a cold plasma}
A61B 2018/00589	. . {Coagulation}
A61B 2018/00595	. . {Cauterization}
A61B 2018/00601	. . {Cutting}
A61B 2018/00607	. . {Coagulation and cutting with the same instrument}

A61B 2018/00613	. . {Irreversible electroporation (reversible electroporation <a href="#">A61N 1/327</a> )}
A61B 2018/00619	. . {Welding}
A61B 2018/00625	. . {Vaporization}
A61B 2018/0063	. . {Sealing}
A61B 2018/00636	. {Sensing and controlling the application of energy}
A61B 2018/00642	. . {with feedback, i.e. closed loop control}
A61B 2018/00648	. . . {using more than one sensed parameter}
A61B 2018/00654	. . . {with individual control of each of a plurality of energy emitting elements}
A61B 2018/0066	. . {without feedback, i.e. open loop control}
A61B 2018/00666	. . {using a threshold value}
A61B 2018/00672	. . . {lower}
A61B 2018/00678	. . . {upper}
A61B 2018/00684	. . {using lookup tables}
A61B 2018/0069	. . {using fuzzy logic}
A61B 2018/00696	. . {Controlled or regulated parameters}
A61B 2018/00702	. . . {Power or energy}
A61B 2018/00708	. . . . {switching the power on or off}
A61B 2018/00714	. . . {Temperature}
A61B 2018/0072	. . . {Current}
A61B 2018/00726	. . . {Duty cycle}
A61B 2018/00732	. . . {Frequency}
A61B 2018/00738	. . . {Depth, e.g. depth of ablation}
A61B 2018/00744	. . . {Fluid flow}
A61B 2018/0075	. . . {Phase}
A61B 2018/00755	. . . {Resistance or impedance}
A61B 2018/00761	. . . {Duration}
A61B 2018/00767	. . . {Voltage}
A61B 2018/00773	. . {Sensed parameters}
A61B 2018/00779	. . . {Power or energy}
A61B 2018/00785	. . . . {Reflected power}
A61B 2018/00791	. . . {Temperature}
A61B 2018/00797	. . . . {measured by multiple temperature sensors}
A61B 2018/00803	. . . . {with temperature prediction}
A61B 2018/00809	. . . . {measured thermochromatically}
A61B 2018/00815	. . . . {measured by a thermistor}
A61B 2018/00821	. . . . {measured by a thermocouple}
A61B 2018/00827	. . . {Current}
A61B 2018/00833	. . . . {Differential current}
A61B 2018/00839	. . . {Bioelectrical parameters, e.g. ECG, EEG}
A61B 2018/00845	. . . {Frequency}

A61B 2018/00851	. . . . {fundamental}
A61B 2018/00857	. . . . {harmonic}
A61B 2018/00863	. . . {Fluid flow}
A61B 2018/00869	. . . {Phase}
A61B 2018/00875	. . . {Resistance or impedance}
A61B 2018/0088	. . . {Vibration}
A61B 2018/00886	. . . {Duration}
A61B 2018/00892	. . . {Voltage}
A61B 2018/00898	. . {Alarms or notifications created in response to an abnormal condition}
A61B 2018/00904	. . {Automatic detection of target tissue}
A61B 2018/0091	. {Handpieces of the surgical instrument or device}
A61B 2018/00916	. . {with means for switching or controlling the main function of the instrument or device}
A61B 2018/00922	. . . {by switching or controlling the treatment energy directly within the hand-piece}
A61B 2018/00928	. . . {by sending a signal to an external energy source}
A61B 2018/00934	. . . . {the signal being non electric, e.g. pneumatic, hydraulic, optical}
A61B 2018/0094	. . . {Types of switches or controllers}
A61B 2018/00946	. . . . {slidable}
A61B 2018/00952	. . . . {rotatable}
A61B 2018/00958	. . . {for switching between different working modes of the main function}
A61B 2018/00964	. {Features of probes}
A61B 2018/0097	. . {Cleaning probe surfaces}
A61B 2018/00976	. . . {with scraping means}
A61B 2018/00982	. {combined with or comprising means for visual or photographic inspections inside the body, e.g. endoscopes}
A61B 2018/00988	. {Means for storing information, e.g. calibration constants, or for preventing excessive use, e.g. usage, service life counter}
A61B 2018/00994	. {combining two or more different kinds of non-mechanical energy or combining one or more non-mechanical energies with ultrasound}
A61B 18/02	. by cooling, e.g. cryogenic techniques (devices for cooling specific reflex points of the body within cell-life limits <a href="#">A61H 39/06</a> )
A61B 18/0206	. . {ultrasonic, e.g. for destroying tissue or enhancing freezing}
A61B 2018/0212	. . {using an instrument inserted into a body lumen, e.g. catheter}
A61B 18/0218	. . {with open-end cryogenic probe, e.g. for spraying fluid directly on tissue or via a tissue-contacting porous tip}
A61B 2018/0225	. . {using an instrument for clamping tissue, e.g. forceps}
A61B 2018/0231	. . {Characteristics of handpieces or probes}
A61B 2018/0237	. . . {with a thermoelectric element in the probe for cooling purposes}
A61B 2018/0243	. . . . {cooling of the hot side of the junction, e.g. heat sink}
A61B 2018/025	. . . . . {by circulating liquid}
A61B 2018/0256	. . . . . {by circulating gas, e.g. air}



- A61B 2018/0262 . . . {using a circulating cryogenic fluid}
- A61B 2018/0268 . . . . {with restriction of flow}
- A61B 2018/0275 . . . . . {using porous elements}
- A61B 2018/0281 . . . . . {using a tortuous path, e.g. formed by fins or ribs}
- A61B 2018/0287 . . . . . . {the fluid flowing through a long thin tube with spiral shape}
- A61B 2018/0293 . . {using an instrument interstitially inserted into the body, e.g. needle}
- A61B 18/04 . by heating (by applying electromagnetic radiation [A61B 18/18](#); hyperthermia using electric or magnetic fields, radiation or ultrasound [A61N](#))
- A61B 18/042 . . {using additional gas becoming plasma}
- A61B 2018/044 . . {the surgical action being effected by a circulating hot fluid}
- A61B 2018/046 . . . {in liquid form}
- A61B 2018/048 . . . {in gaseous form}
- A61B 18/06 . . caused by chemical reaction, {e.g. moxaburners}
- A61B 2018/062 . . . {one of the reactants being oxygen}
- A61B 2018/064 . . . . {Moxaburners}
- A61B 2018/066 . . . {one of the reactants being oxygen not from the air}
- A61B 2018/068 . . . {none of the reactants being oxygen}
- A61B 18/08 . . by means of electrically-heated probes
- A61B 18/082 . . . {Probes or electrodes therefor}
- A61B 18/085 . . . . {Forceps, scissors}
- A61B 2018/087 . . . . {using semiconductors as heating element}
- A61B 18/10 . . . Power sources therefor
- A61B 18/12 . . by passing a current through the tissue to be heated, e.g. high-frequency current
- A61B 18/1206 . . . {Generators therefor}
- A61B 2018/1213 . . . . {creating an arc}
- A61B 2018/122 . . . . {ionizing, with corona}
- A61B 2018/1226 . . . . {powered by a battery}
- A61B 18/1233 . . . . {with circuits for assuring patient safety}
- A61B 2018/124 . . . . {switching the output to different electrodes, e.g. sequentially}
- A61B 2018/1246 . . . . {characterised by the output polarity}
- A61B 2018/1253 . . . . . {monopolar}
- A61B 2018/126 . . . . . {bipolar}
- A61B 2018/1266 . . . . {with DC current output}
- A61B 2018/1273 . . . . {including multiple generators in one device}
- A61B 2018/128 . . . . {generating two or more frequencies}
- A61B 2018/1286 . . . . {having a specific transformer}
- A61B 2018/1293 . . . . {having means to prevent interference}
- A61B 18/14 . . . Probes or electrodes therefor
- A61B 18/1402 . . . . {Probes for open surgery}

A61B 2018/1405	. . . .	{Electrodes having a specific shape}
A61B 2018/1407	. . . . .	{Loop}
A61B 2018/141	. . . . .	{Snare}
A61B 2018/1412	. . . . .	{Blade}
A61B 2018/1415	. . . . .	{multiple blades}
A61B 2018/1417	. . . . .	{Ball}
A61B 2018/142	. . . . .	{at least partly surrounding the target, e.g. concave, curved or in the form of a cave}
A61B 2018/1422	. . . . .	{Hook}
A61B 2018/1425	. . . . .	{Needle}
A61B 2018/1427	. . . . .	{with a beveled end}
A61B 2018/143	. . . . .	{multiple needles}
A61B 2018/1432	. . . . .	{curved}
A61B 2018/1435	. . . . .	{Spiral}
A61B 2018/1437	. . . . .	{whereby the windings of the spiral touch each other such as to create a continuous surface}
A61B 2018/144	. . . . .	{Wire}
A61B 18/1442	. . . .	{Probes having pivoting end effectors, e.g. forceps}
A61B 18/1445	. . . . .	{at the distal end of a shaft, e.g. forceps or scissors at the end of a rigid rod}
A61B 18/1447	. . . . .	{wherein sliding surfaces cause opening/closing of the end effectors}
A61B 2018/145	. . . . .	{wherein the effectors remain parallel during closing and opening}
A61B 2018/1452	. . . . .	{including means for cutting ( <a href="#">A61B 2018/146</a> takes precedence)}
A61B 2018/1455	. . . . .	{having a moving blade for cutting tissue grasped by the jaws}
A61B 2018/1457	. . . . .	{having opposing blades cutting tissue grasped by the jaws, i.e. combined scissors and pliers}
A61B 2018/146	. . . . .	{Scissors}
A61B 2018/1462	. . . . .	{Tweezers}
A61B 2018/1465	. . . . .	{Deformable electrodes}
A61B 2018/1467	. . . . .	{using more than two electrodes on a single probe}
A61B 2018/147	. . . . .	{Electrodes transferring energy by capacitive coupling, i.e. with a dielectricum between electrode and target tissue}
A61B 2018/1472	. . . . .	{for use with liquid electrolyte, e.g. virtual electrodes}
A61B 2018/1475	. . . . .	{Electrodes retractable in or deployable from a housing}
A61B 18/1477	. . . . .	{Needle-like probes}
A61B 18/148	. . . . .	{having a short, rigid shaft for accessing the inner body transcutaneously, e.g. for neurosurgery or arthroscopy}
A61B 18/1482	. . . . .	{having a long rigid shaft for accessing the inner body transcutaneously in minimal invasive surgery, e.g. laparoscopy}
A61B 18/1485	. . . . .	{having a short rigid shaft for accessing the inner body through natural openings}

- A61B 18/1487 . . . . {Trocac-like, i.e. devices producing an enlarged transcutaneous opening}
- A61B 18/149 . . . . {bow shaped or with rotatable body at cantilever end, e.g. for resectoscopes, or coagulating rollers}
- A61B 18/1492 . . . . {having a flexible, catheter-like structure, e.g. for heart ablation ([A61B 18/1477](#) takes precedence)}
- A61B 2018/1495 . . . . {Electrodes being detachable from a support structure}
- A61B 2018/1497 . . . . {Electrodes covering only part of the probe circumference}
- A61B 18/16 . . . . Indifferent or passive electrodes for grounding
- A61B 2018/162 . . . . . {located on the probe body}
- A61B 2018/165 . . . . . {Multiple indifferent electrodes}
- A61B 2018/167 . . . . . {Passive electrodes capacitively coupled to the skin}
- A61B 18/18 . . by applying electromagnetic radiation, e.g. microwaves ([radiation therapy A61N 5/00](#))
- A61B 2018/1807 . . {using light other than laser radiation}
- A61B 18/1815 . . {using microwaves}
- A61B 2018/1823 . . . {Generators therefor}
- A61B 2018/183 . . . {characterised by the type of antenna}
- A61B 2018/1838 . . . . {Dipole antennas}
- A61B 2018/1846 . . . . {Helical antennas}
- A61B 2018/1853 . . . . {Monopole antennas}
- A61B 2018/1861 . . . {with an instrument inserted into a body lumen or cavity, e.g. a catheter}
- A61B 2018/1869 . . . {with an instrument interstitially inserted into the body, e.g. needles}
- A61B 2018/1876 . . . {with multiple frequencies}
- A61B 2018/1884 . . . {with non-uniform emissions}
- A61B 2018/1892 . . . {Details of electrical isolations of the antenna}
- A61B 18/20 . . using laser
- A61B 2018/2005 . . . {with beam delivery through an interstitially insertable device, e.g. needle}
- A61B 18/201 . . . {the beam being delivered through a hollow tube, e.g. forming an articulated arm ([through a flexible conduit A61B 18/22](#)); Hand-pieces therefor}
- A61B 2018/2015 . . . {Miscellaneous features}
- A61B 2018/202 . . . . {Laser in handpiece}
- A61B 2018/2025 . . . . {with a pilot laser}
- A61B 18/203 . . . {applying laser energy to the outside of the body}
- A61B 2018/2035 . . . {Beam shaping; Optical components therefor ([A61B 2018/2255](#) takes precedence)}
- A61B 2018/204 . . . . {Attenuator}
- A61B 2018/2045 . . . . {Chopper}
- A61B 2018/205 . . . . . {with electronic means, e.g. acousto-optic}
- A61B 2018/2055 . . . . . {with mechanical means}
- A61B 2018/206 . . . {the laser light passing along a liquid-filled conduit}

A61B 2018/2065	. . .	{Multiwave; Wavelength mixing, e.g. using four or more wavelengths (pilot laser <a href="#">A61B 2018/2025</a> )}
A61B 2018/207	. . . .	{mixing two wavelengths}
A61B 2018/2075	. . . .	{mixing three wavelengths}
A61B 2018/208	. . .	{with multiple treatment beams not sharing a common path, e.g. non-axial or parallel}
A61B 2018/2085	. . .	{Scanning mechanisms}
A61B 2018/209	. . . .	{by movable optical fibre end}
A61B 2018/2095	. . . .	{by movable mirror, e.g. galvanometric}
A61B 18/22	. . .	the beam being directed along or through a flexible conduit, e.g. an optical fibre; {Couplings}, hand-pieces therefor
A61B 2018/2205	. . . .	{Characteristics of fibres}
A61B 2018/2211	. . . . .	{Plurality of fibres}
A61B 2018/2216	. . . . .	{braided, helically wound}
A61B 2018/2222	. . . . .	{Fibre material or composition}
A61B 2018/2227	. . . . .	{hollow fibre}
A61B 2018/2233	. . . . .	{solid transparent for far infrared light}
A61B 2018/2238	. . . .	{with means for selectively laterally deflecting the tip of the fibre (with balloon <a href="#">A61B 2017/22051</a> )}
A61B 2018/2244	. . . .	{Features of optical fibre cables, e.g. claddings}
A61B 2018/225	. . . .	{Features of handpieces ( <a href="#">A61B 2018/2255</a> takes precedence)}
A61B 2018/2255	. . . .	{Optical elements at the distal end of probe tips}
A61B 2018/2261	. . . . .	{with scattering, diffusing or dispersing of light}
A61B 2018/2266	. . . . .	{with a lens, e.g. ball tipped}
A61B 2018/2272	. . . . .	{with a reflective or refractive surface for deflecting the beam ( <a href="#">A61B 2018/2261</a> , <a href="#">A61B 2018/2266</a> take precedence)}
A61B 2018/2277	. . . . .	{with a refractive surface}
A61B 2018/2283	. . . . .	{with a pivotable mirror}
A61B 2018/2288	. . . . .	{the optical fibre cable having a curved distal end}
A61B 2018/2294	. . . . .	{with a diffraction grating}
A61B 18/24	. . . .	with a catheter ( <a href="#">A61B 18/26</a> , <a href="#">A61B 18/28</a> take precedence)
A61B 18/245	. . . . .	{for removing obstructions in blood vessels or calculi}
A61B 18/26	. . . .	for producing a shock wave, e.g. laser lithotripsy
A61B 2018/263	. . . . .	{the conversion of laser energy into mechanical shockwaves taking place in a liquid}
A61B 2018/266	. . . . .	{the conversion of laser energy into mechanical shockwaves taking place in a part of the probe}
A61B 18/28	. . . .	for heating a thermal probe or absorber

**A61B 19/00**

**Instruments, implements or accessories for surgery or diagnosis not covered by any of the groups [A61B 1/00](#) to [A61B 17/00](#), e.g. for stereotaxis, sterile operation, luxation treatment, wound edge protectors** ({surgeon's or patient's gowns or dresses, surgical masks [A41D 13/00](#)} ; devices for carrying-off, for treatment of, or for carrying-over, body liquids [A61M 1/00](#))

**A61B 19/02**

- Protective casings or covers for appliances or instruments, e.g. boxes or sterile covers; Instrument tables or cupboards; Doctors' bags {(cleaning devices for surgical instruments [A61B 19/34](#); instrument-protective drapes [A61B 19/081](#); for sterilising articles [A61L 2/00](#); for cleaning for sterilising hypodermic or infusion needles or syringes [A61M 5/001](#); for preservation of living parts of the human or animal body [A01N 1/02](#))}

**A61B 2019/0201**

- . {having adhesive means, e.g. an adhesive strip}

**A61B 2019/0202**

- . {with a lid or cover}

**A61B 2019/0203**

- . . {closable by rotation}

**A61B 2019/0204**

- . . . . {of two concentric cylinders with corresponding lateral openings, about their common longitudinal axis}

**A61B 2019/0205**

- . . . . {of two concentric parallelepipeds about a common longitudinal axis}

**A61B 2019/0206**

- . . . . {about the central longitudinal axis perpendicular to the lid plane}

**A61B 2019/0208**

- . . . . {about a lateral axis perpendicular to the lid plane}

**A61B 2019/0209**

- . . . . {about a lateral axis in the lid plane}

**A61B 2019/021**

- . . . . {about a transverse axis in the lid plane}

**A61B 2019/0211**

- . . . {closable by translation}

**A61B 2019/0212**

- . . . . {parallel to the lid plane}

**A61B 2019/0213**

- . . . . {perpendicular to the lid plane, e.g. by a downward movement}

**A61B 2019/0214**

- . . . . . {the height of the lid being adjustable with respect to the casing sidewalls}

**A61B 2019/0216**

- . . . {closable by a combination of rotation and translation}

**A61B 2019/0217**

- . . . . {Bayonet coupling}

**A61B 2019/0218**

- . . . . {by screwing}

**A61B 2019/0219**

- . . . {Peelable cover}

**A61B 2019/022**

- . . . {with additional sealing means, e.g. O-ring}

**A61B 2019/0221**

- . . . {Types of closures or fasteners (using adhesives [A61B 2019/0201](#))}

**A61B 2019/0222**

- . . . . {Cooperating dimples}

**A61B 2019/0224**

- . . . . {Press-buttons}

**A61B 2019/0225**

- . . . . {Locking clamps ([A61B 2019/0229](#) takes precedence)}

**A61B 2019/0226**

- . . . . {Draw-strings (ties [A61B 2019/0228](#))}

**A61B 2019/0227**

- . . . . {Plugs, e.g. rubber plugs}

**A61B 2019/0228**

- . . . . {Ties (draw-strings [A61B 2019/0226](#))}

**A61B 2019/0229**

- . . . . {Toggle latches or clamps (locking clamps [A61B 2019/0225](#); swingable wire bails [A61B 2019/0231](#))}

**A61B 2019/0231**

- . . . . {Swingable wire bails or handles ([A61B 2019/0229](#) takes precedence; carrying handles [A61B 2019/0281](#))}

- A61B 2019/0232 . . . . {having additional locking means (permanent closure means [A61B 2019/0245](#))}
- A61B 2019/0233 . . . . {having additional unlocking means}
- A61B 2019/0234 . . . . {Magnetic closures}
- A61B 2019/0235 . . . . {Pegs inserted, e.g. forced, into openings}
- A61B 2019/0236 . . . . {Pins cooperating with slots of a slideable locking bar}
- A61B 2019/0237 . . . . {Rib-and-groove connection}
- A61B 2019/0239 . . . . {Snap connection}
- A61B 2019/024 . . . . {Tabs inserted into slots}
- A61B 2019/0241 . . . . {Hook and loop}
- A61B 2019/0242 . . . . {closed by or under vacuum}
- A61B 2019/0243 . . . . {closed in two steps}
- A61B 2019/0244 . . . . {Zip}
- A61B 2019/0245 . . . {having permanent closure means}
- A61B 2019/0247 . . . . {having additional means for temporarily preventing said permanent closure}
- A61B 19/0248 . . {Furniture specially adapted for surgery or diagnosis, e.g. cabinets, carts, cupboards or tables (supports for surgeons [A61B 19/28](#); medicine cabinets [A47B 67/00](#); accommodation for nursing [A61G 12/00](#))}
- A61B 2019/0249 . . . {Cabinets}
- A61B 2019/025 . . . {Carts or trolleys}
- A61B 2019/0251 . . . . {Mayo stands (other holding stands [A61B 2019/0259](#))}
- A61B 2019/0252 . . . {Cupboards}
- A61B 2019/0254 . . . . {Drawers}
- A61B 2019/0255 . . . {Tables}
- A61B 19/0256 . . {Holders for articles, e.g. magnetic holders, racks, stands (holders for suture needles or materials [A61B 17/06061](#); supports as part of surgical instruments [A61B 19/26](#); drapes with means to hold surgical instruments [A61B 19/10](#); hangers for particular articles [A47F 7/00](#); for tooth drills [A61C 3/04](#); for receptacles and tubing attached to beds [A61G 7/0503](#); for pharmaceutical containers [A61J 1/16](#); for irrigation devices [A61M 3/0266](#); racks for syringes or for hypodermic or infusion needles [A61M 5/008](#); for infusion devices [A61M 5/1414](#); for catheters [A61M 25/02](#); holding devices for laboratory apparatus [B01L 9/00](#); racks for work tools [B25H 3/04](#))}
- A61B 2019/0257 . . . {Magnetic holders}
- A61B 2019/0258 . . . {Racks}
- A61B 2019/0259 . . . {Stands (Mayo stands [A61B 2019/0251](#))}
- A61B 19/026 . . {Casings for packaging, protecting or dispensing articles (for endoscopes [A61B 1/00142](#); for test samples [A61B 10/0096](#); for sutures [A61B 17/06114](#); for ligaturing clips [A61B 17/1222](#); for gloves or finger-stalls [A61B 19/045](#); for dental floss [A61C 15/043](#); for dental instruments [A61C 19/02](#); for prostheses [A61F 2/0095](#); for contraceptive devices [A61F 6/005](#); for bandages or the like [A61F 15/001](#); for pharmaceutical products [A61J 1/00](#); for catheters [A61M 25/002](#); in general [B65D](#), e.g. with dispensing means [B65D 83/00](#); for ampoules [B65D 85/42](#); for clinical thermometers [G01K 1/083](#); for optical fibres [G02B 6/444](#); for X-ray films [G03C 3/003](#))}

- A61B 19/0262 . . . {for sharps (for suture needles [A61B 17/06114](#); for scalpel-blades [A61B 17/3215](#); for wound clamps [A61B 17/105](#); for used sharps [A61B 19/0288](#); for syringes or for hypodermic or infusion needles [A61M 5/002](#), [A61M 5/1626](#), [A61M 5/3202](#))}
- A61B 2019/0263 . . . . {including foam blocks for retaining sharps (for retaining suture needles [A61B 2017/06147](#))}
- A61B 19/0264 . . . {Carrying bags, cases, trusses (bags for midwives [A61B 17/48](#); bags in general [A45C](#); first-aid kits [A61F 17/00](#))}
- A61B 2019/0265 . . . . {Cases}
- A61B 19/0266 . . . . {Doctors' or nurses' bags}
- A61B 2019/0267 . . . {Flexible bags or pouches}
- A61B 2019/0268 . . . . {double- or multiple-walled}
- A61B 2019/027 . . . . {Multi-pouches, e.g. strips of side-by-side pouches}
- A61B 19/0271 . . . {Trays (serving trays [A47G 23/06](#))}
- A61B 2019/0272 . . . {Baskets made of metal wire}
- A61B 2019/0273 . . . {containing desiccant means, e.g. desiccant pouches}
- A61B 2019/0274 . . . {containing a preservative liquid, e.g. an antiseptic liquid (bactericidal products in casings for used articles [A61B 2019/0293](#))}
- A61B 2019/0275 . . . {Nested casings}
- A61B 2019/0277 . . . {Stackable casings}
- A61B 2019/0278 . . . {having multiple compartments (multiple flexible pouches [A61B 2019/027](#))}
- A61B 2019/0279 . . . {having means for connecting similar adjacent containers}
- A61B 2019/028 . . . {carried on the medical practitioner's clothing or back}
- A61B 2019/0281 . . . {having carrying handles (swingable locking handles [A61B 2019/0231](#))}
- A61B 2019/0282 . . . . {Wrist hangers}
- A61B 2019/0283 . . . {having means for automatically ejecting the stored article}
- A61B 2019/0285 . . . {waterproof (for prostheses [A61F 2250/0076](#))}
- A61B 2019/0286 . . . {transparent (for surgical instruments or accessories [A61B 2017/00902](#); for prostheses [A61F 2250/0091](#))}
- A61B 19/0287 . . {Casings for removing or collecting used articles (for sutures [A61B 17/06161](#); accessories for operating tables, e.g. for collecting body wastes [A61G 13/10](#); combustible sputum cups [A61J 19/06](#); sterilising refuse [A61L 11/00](#); for destroying hypodermic or infusion needles or syringes [A61M 5/3278](#); disposal of medical waste by destroying it or transforming it into something useful or harmless [B09B 3/0075](#); for domestic refuse or the like [B65F](#))}
- A61B 19/0288 . . . {for sharps (for suture needles [A61B 17/06161](#); for scalpel-blades [A61B 17/3217](#); for syringes or for hypodermic or infusion needles [A61M 5/3205](#))}
- A61B 2019/0289 . . . . {having additional means for destroying used sharps (for destroying used hypodermic or infusion needles or syringes [A61M 5/3278](#))}
- A61B 19/029 . . . {for absorbent articles, e.g. bandages, cotton balls, covers, drapes, dressings, garments, gauze, gowns, napkins, sponges, swabs or towels (devices for determining blood loss [A61B 5/02042](#))}



- A61B 2019/0291 . . . . {for sponges (counting means [A61B 2019/4821](#))}
- A61B 2019/0293 . . . {containing anti-microbial, anti-viral, bactericidal or disinfectant products (preservative liquid in packages or dispensers [A61B 2019/0274](#))}
- A61B 2019/0294 . . {having temperature-modifying means}
- A61B 2019/0295 . . . {Cooling means}
- A61B 2019/0296 . . . {Heating means}
- A61B 2019/0297 . . . . {Chemical heating}
- A61B 2019/0298 . . . . {Electric heating}
- A61B 19/04 . Operating gloves; Finger-stalls for operating; Devices for treating them, e.g. cleaning, powdering (glove-boxes for manipulating, gloves therefor [B25J 21/02](#))
- A61B 19/041 . . {Devices for detecting perforations in surgical gloves or finger-stalls}
- A61B 2019/043 . . {Finger stalls}
- A61B 19/045 . . {Packages or dispensers for gloves or finger-stalls}
- A61B 2019/046 . . {Devices for putting-on or taking-off gloves}
- A61B 2019/048 . . {Devices for washing of, drying of, or applying powder to, gloves}
- A61B 19/08 . Surgical drapes (bandages, dressings or absorbent pads [A61F 13/00](#))
- A61B 19/081 . . {for protection of instruments, e.g. microscopes (for part of endoscope entering the body [A61B 1/00142](#))}
- A61B 2019/082 . . . {entering the body, e.g. non-transparent}
- A61B 2019/083 . . . . {closed at the distal end}
- A61B 2019/084 . . {with means for connecting to the patient}
- A61B 2019/085 . . . {adhesive}
- A61B 2019/086 . . {for extremities, e.g. having collection pouch ([A61B 19/12](#) takes precedence)}
- A61B 19/087 . . {for surgery through the lower body openings, e.g. urology, gynaecology}
- A61B 19/088 . . {Drape material, e.g. laminates; Manufacture thereof}
- A61B 19/10 . . with means to retain or hold surgical implements {(holders for articles [A61B 19/0256](#))}
- A61B 2019/103 . . . {with means for retaining a catheter}
- A61B 2019/106 . . . {with a drain tube or with means for collecting drain fluid}
- A61B 19/12 . . tubular, e.g. for arms or legs {([A61B 19/087](#) takes precedence)}
- A61B 19/20 . {for stereotaxic surgery (using radio-opaque markers [A61B 19/54](#))}
- A61B 19/201 . . {with needle or instrument guides, e.g. arcuate slides, ball joints (needle guiding or locating means [A61B 17/3403](#))}
- A61B 2019/202 . . . {guided by light, e.g. laser pointers}
- A61B 19/203 . . {Fixators for body parts, e.g. head fixators, skull clamps or bite blocks (tables with compression means for mammography [A61B 6/0414](#); tables with patient immobilising means for radiation diagnosis [A61B 6/0421](#)); Constructional details thereof, e.g. fixating pins (bone screws or pins [A61B 17/86](#))}
- A61B 2019/204 . . . {Bite blocks}
- A61B 2019/205 . . . {for soft tissue, e.g. breast holding devices}
- A61B 2019/206 . . . {Retaining sheets, e.g. immobilizing masks made from a thermoplastic material}

- A61B 2019/207 . . {for stereotaxic radiosurgery}
- A61B 2019/208 . . {Cranial plugs for access to brain}
- A61B 19/22 . {Manipulators specially adapted for use in surgery}
- A61B 19/2203 . . {Surgical robots}
- A61B 2019/2207 . . . {operating autonomously}
- A61B 2019/2211 . . . {for introducing or steering flexible instruments inserted into the body, e.g. catheters or endoscopes}
- A61B 2019/2215 . . . {specifically adapted for manipulations within body cavities, e.g. within abdominal or thoracic cavities}
- A61B 2019/2219 . . . {specifically adapted for manipulations within body lumens, e.g. within lumen of gut, spine, or blood vessels}
- A61B 2019/2223 . . . {Master-Slave robots}
- A61B 2019/2226 . . . {including a freely orientable platform, e.g. so called 'Stewart platforms'}
- A61B 2019/223 . . . {for telesurgery}
- A61B 2019/2234 . . . {Details of wrist mechanisms at distal ends of robotic arms}
- A61B 2019/2238 . . . . {Wrists with multiple vertebrae}
- A61B 2019/2242 . . {operated by drive cable mechanisms}
- A61B 2019/2246 . . . {Cable tensioning mechanisms for removing slack}
- A61B 2019/2249 . . {Micromanipulators}
- A61B 2019/2253 . . {Manipulators for magnetic surgery}
- A61B 2019/2257 . . . {Coil or magnet arrangements therefor}
- A61B 2019/2261 . . . . {arranged around the patient, e.g. in a gantry}
- A61B 2019/2265 . . . . {arranged only on one side of the patient, e.g. under a table}
- A61B 2019/2269 . . {Manual electric input means}
- A61B 2019/2273 . . . {Glove like input devices, e.g. "data gloves"}
- A61B 2019/2276 . . . {Joysticks}
- A61B 2019/228 . . . {Keyboards}
- A61B 2019/2284 . . . {Mouse}
- A61B 2019/2288 . . {Prevention or compensation of hand tremors}
- A61B 2019/2292 . . {with means providing feel, e.g. force or tactile feedback}
- A61B 2019/2296 . . {with motion or force scaling ([A61B 2019/2288](#) takes precedence)}
- A61B 19/24 . {Devices for expanding tissue, e.g. skin tissue (implements for holding wounds open, surgical tractors [A61B 17/02](#); implantable mammary prosthesis [A61F 2/12](#); dilators [A61M 29/00](#))}
- A61B 19/26 . {Supports as part of surgical instruments, e.g. articulated arms, headbands ([A61B 19/22](#) takes precedence; holders for articles [A61B 19/0256](#))}
- A61B 2019/261 . . {connected to doctor's body, e.g. by a belt}
- A61B 2019/262 . . {Headgear, e.g. helmet, spectacles}
- A61B 2019/263 . . {with a counter-balancing mechanism}
- A61B 2019/264 . . . {with a counterweight}
- A61B 2019/265 . . {using a parallelogram linkage, e.g. pantograph}
- A61B 2019/266 . . {with releasable brake mechanisms}

- A61B 2019/267 . . {Accessory clamps}
- A61B 2019/268 . . . {for clamping a support arm to a bed or other supports}
- A61B 19/28 . {Supports for surgeons, e.g. chairs, hand supports (seats for the dentist or surgeon associated with dental or operating chairs [A61G 15/00](#))}
- A61B 19/30 . {Automatic limiting or abutting means, e.g. for safety}
- A61B 2019/301 . . {torque limiting}
- A61B 2019/302 . . {pressure limiting, e.g. hydrostatic}
- A61B 2019/303 . . {Abutting means, stops, e.g. abutting on tissue or skin}
- A61B 2019/304 . . . {abutting on parts of the device itself}
- A61B 2019/305 . . . . {preventing further rotation}
- A61B 2019/306 . . . {abutting on tissue or skin}
- A61B 2019/307 . . {with a frangible part, e.g. by reduced diameter}
- A61B 2019/308 . . {during shipment}
- A61B 19/34 . {Cleaning devices specially adapted for surgical instruments (disinfecting [A61L 2/00](#); cleaning in general [B08B](#))}
- A61B 2019/343 . . {for flexible tubular instruments, e.g. endoscopes}
- A61B 2019/346 . . {Devices for testing the cleaning process, e.g. test soils}
- A61B 19/36 . {Implements for cleaning or washing surgeon's hands or patient's skin (hand-held absorbent pads or swabs containing a cleaning liquid, e.g. in a rupturable reservoir, [A61M 35/006](#))}
- A61B 19/38 . {Apparatus for sterile operations, e.g. apparatus fixed to patient for providing an aseptic surgical environment}
- A61B 2019/385 . . {using air flow}
- A61B 19/40 . {Protection of tissue around surgical sites against effects of non-mechanical surgery, e.g. laser surgery (protection of eyes against laser radiation [A61F 9/022](#))}
- A61B 2019/4009 . . {Specification of type of protection measures}
- A61B 2019/4018 . . . {Compensation}
- A61B 2019/4027 . . . {Prevention of contact}
- A61B 2019/4036 . . . {Shielding}
- A61B 2019/4045 . . . . {by absorption}
- A61B 2019/4054 . . . . {by reflection}
- A61B 2019/4063 . . {against cooling or freezing}
- A61B 2019/4072 . . {against ultrasound energy}
- A61B 2019/4081 . . {against EM radiation, e.g. microwave}
- A61B 2019/409 . . {against light, e.g. laser}
- A61B 19/42 . {Splash shields for protection of the surgeon, e.g. splash guards connected to the apparatus ([A41D 13/11](#) takes precedence)}
- A61B 19/44 . {Identification means for patients or instruments, e.g. identification tags}
- A61B 2019/442 . . {with bar code}
- A61B 2019/444 . . {Colour-coded}
- A61B 2019/446 . . {coded with symbols, e.g. dots, numbers, letters, words}

- A61B 2019/448 . . {Detection or identification by electromagnetic means, e.g. transponders}
- A61B 19/46 . {Measuring instruments not otherwise provided for (for implanting artificial joints [A61F 2/4657](#))}
- A61B 2019/461 . . {for measuring dimensions, e.g. length ([A61B 2019/462](#) takes precedence)}
- A61B 2019/462 . . {penetration depth}
- A61B 2019/463 . . {for measuring volume}
- A61B 2019/464 . . {for measuring force, pressure or mechanical tension}
- A61B 2019/465 . . . {for measuring contact or contact pressure}
- A61B 2019/466 . . . {for measuring torque}
- A61B 2019/467 . . {for measuring angles}
- A61B 2019/468 . . . {with a bubble level}
- A61B 2019/469 . . . {using a plummet or weight}
- A61B 2019/48 . {Accessories or related features not otherwise provided for}
- A61B 2019/4805 . . {Prevention of accidental cutting or pricking (protective suturing devices [A61B 17/0493](#), blunt suture needles [A61B 2017/06085](#), blunt dissectors [A61B 2017/320044](#))}
- A61B 2019/481 . . . {of the patient or his organs}
- A61B 2019/4815 . . {Counting the number of times an instrument is used}
- A61B 2019/4821 . . {Counting number of instruments used; Instrument detectors}
- A61B 2019/4826 . . . {automatically, e.g. by means of magnetic, optical or photoelectric detectors}
- A61B 2019/4831 . . . {Instrument detectors with a removable part, e.g. working tip}
- A61B 2019/4836 . . {Indication means}
- A61B 2019/4842 . . . {for indicating correct assembly of components, e.g. of the surgical apparatus}
- A61B 2019/4847 . . . {Indication of cracks or breakages}
- A61B 2019/4852 . . . {for contamination or dirt}
- A61B 2019/4857 . . . {for the position of a particular part of an instrument with respect to the rest of the instrument, e.g. position of the anvil of a stapling instrument}
- A61B 2019/4863 . . . . {indicating loosening or shifting of parts of an instrument, signaling maladjustment of parts}
- A61B 2019/4868 . . {Accessories designed for easy sterilising, i.e. re-usable}
- A61B 2019/4873 . . {Preventing re-use (for prostheses [A61F 2250/009](#))}
- A61B 2019/4878 . . {Implantable devices for insertion in between organs or other soft tissues (plugging wall openings [A61B 17/0057](#), retractors [A61B 17/02](#), tissue expanders [A61B 19/24](#))}
- A61B 2019/4884 . . . {for preventing adhesion}
- A61B 2019/4889 . . {Spatulas or spatula like extensions}
- A61B 2019/4894 . . {Redundant systems, e.g. using two independent measuring systems and comparing the signals}
- A61B 19/50 . {Computer-aided planning, simulation or modeling of a surgical operation}
- A61B 2019/501 . . {Computer simulation of a surgical treatment}
- A61B 2019/502 . . . {Modelling of surgical devices, implants or prosthesis}

- A61B 2019/504 . . . . {for modeling the effect of the tool, e.g. the effect of an implanted prosthesis or for predicting the effect of ablation or burring}
- A61B 2019/505 . . . {Modelling of the patient , e.g. for ligaments or bones}
- A61B 2019/507 . . {with visualisation of a planned trajectory or a target region}
- A61B 2019/508 . . {Computer aided selection or customisation of medical implant or cutting guide}
- A61B 19/52 . {Image-producing devices or illumination devices not otherwise provided for, e.g. operation microscopes; Operation lamp handles}
- A61B 19/5202 . . {Devices for illuminating a surgical field}
- A61B 2019/5204 . . . {using chemi-luminescent materials}
- A61B 2019/5206 . . . {using optical fibres}
- A61B 2019/5208 . . . {Lamp handles}
- A61B 2019/521 . . . {using white LEDs}
- A61B 19/5212 . . {Image-producing devices, e.g. surgical cameras ([A61B 19/5223](#), [A61B 19/5225](#) take precedence)}
- A61B 2019/5214 . . . {with images taken automatically}
- A61B 2019/5217 . . . {using optical fibre}
- A61B 2019/5219 . . . {Magnifying glass}
- A61B 2019/5221 . . . {with a mirror}
- A61B 19/5223 . . {Surgical microscopes}
- A61B 19/5225 . . {Surgical systems with images on a monitor during operation}
- A61B 2019/5227 . . . {with simultaneous use of two cameras}
- A61B 2019/5229 . . . {Details of monitor hardware}
- A61B 2019/5231 . . . {using light, e.g. by using optical scanners}
- A61B 2019/5234 . . . . {Optical coherence tomography [OCT]}
- A61B 2019/5236 . . . {NMR or MRI}
- A61B 2019/5238 . . . {X-ray, e.g. fluoroscopy}
- A61B 2019/524 . . . . {using computed tomography systems [CT]}
- A61B 2019/5242 . . . . . {with a rotating C-arm having a cone beam emitting source}
- A61B 19/5244 . . . {Systems for tracking the position of an instrument during image guided surgery, e.g. surgical navigation systems}
- A61B 2019/5246 . . . . {using a specific tracking technique}
- A61B 2019/5248 . . . . . {using an accelerometer or inertia sensor}
- A61B 2019/5251 . . . . . {Electromagnetic tracking systems}
- A61B 2019/5253 . . . . . {tracking an applied voltage gradient}
- A61B 2019/5255 . . . . . {Optical tracking systems}
- A61B 2019/5257 . . . . . {Details of tracking cameras}
- A61B 2019/5259 . . . . . {Mechanical position encoders therefor}
- A61B 2019/5261 . . . . . {using shape sensors, e.g. fiber shape sensors with Bragg gratings}
- A61B 2019/5263 . . . . . {Acoustic tracking systems, e.g. using ultrasound}
- A61B 2019/5265 . . . . . {Tracking by image or pattern recognition}

A61B 2019/5268	. . . . {using pointers, e.g. pointers having reference marks for determining coordinates of body points}
A61B 2019/527	. . . . . {Divots for calibration}
A61B 2019/5272	. . . . {Reference field transducer attached to an instrument or patient}
A61B 2019/5274	. . . . {Interface software}
A61B 2019/5276	. . . {ultrasound}
A61B 2019/5278	. . . . {transmitter or receiver in catheter or minimal invasive instrument}
A61B 2019/528	. . . . . {both receiver and transmitter being in the instrument or receiver being also transmitter}
A61B 2019/5282	. . . . . {receiver only}
A61B 2019/5285	. . . . . {transmitter only}
A61B 2019/5287	. . {Use of fiducial points}
A61B 2019/5289	. . {Correlation of different images or relation of image positions in respect to the body}
A61B 2019/5291	. . . {augmented reality, i.e. correlating a live optical image with another image}
A61B 2019/5293	. . . {using projection of images directly onto the body}
A61B 2019/5295	. . . {creating a 3D dataset from 2D images using position information}
A61B 2019/5297	. . . {changing the image on a display according to the operator's position}
A61B 19/54	. {Markers, e.g. radio-opaque or breast lesions markers ( <a href="#">mechanical markers for eye-keratomy A61F 9/0136</a> ; <a href="#">markers in surgical tampons or sponges A61F 13/44</a> ; <a href="#">markers on catheters A61M 25/0108</a> )}
A61B 2019/5404	. . {for marking specified tissue}
A61B 2019/5408	. . . {Soft tissue, e.g. breast tissue}
A61B 2019/5412	. . . {Body cavities}
A61B 2019/5416	. . . {Bone tissue}
A61B 2019/542	. . {radioactive}
A61B 2019/5425	. . {ultrasonic}
A61B 2019/5429	. . . {active}
A61B 2019/5433	. . {liquid}
A61B 2019/5437	. . {visible ( <a href="#">A61B 2019/446 takes precedence</a> )}
A61B 2019/5441	. . . {photoluminescent}
A61B 2019/5445	. . . {Active visible markers, e.g. light emitting diodes ( <a href="#">A61B 2019/5441 takes precedence</a> )}
A61B 2019/545	. . . {with marking agent for marking skin or other tissue}
A61B 2019/5454	. . {magnetic, e.g. NMR or MRI}
A61B 2019/5458	. . . {emitting a signal}
A61B 2019/5462	. . {palpable}
A61B 2019/5466	. . {Radiopaque markers visible in an X-ray image}
A61B 2019/547	. . {electromagnetic other than visible, e.g. microwave}
A61B 2019/5475	. . . {active}
A61B 2019/5479	. . . . {infrared}



- A61B 2019/5483 . . {Reference marker arrangements for use with image guided surgery}
  - A61B 2019/5487 . . {Applicators for implanting markers}
  - A61B 2019/5491 . . {having specific anchoring means to fixate the marker to the tissue, e.g. hooks}
  - A61B 2019/5495 . . {Multi-modality markers}
  - A61B 19/56 . {User interfaces for surgical systems}
  - A61B 2019/562 . . {indicating steps of a surgical procedure}
  - A61B 2019/564 . . {being adapted depending on the stage of the surgical procedure}
  - A61B 2019/566 . . {with a database of accessory information, e.g. including context sensitive help or scientific articles}
  - A61B 2019/568 . . {providing specific settings for specific users}
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#### **A61B 2217/00      General characteristics of surgical instruments**

- A61B 2217/002 . Auxiliary appliance
- A61B 2217/005 . . with suction drainage system
- A61B 2217/007 . . with irrigation system

#### **Diagnosis; Psycho-physical tests**

#### **A61B 2218/00      Details of surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body**

- A61B 2218/001 . having means for irrigation and/or aspiration of substances to and/or from the surgical site ([A61B 2018/00029](#) and [A61B 2018/1472](#) take precedence)
- A61B 2218/002 . . Irrigation
- A61B 2218/003 . . . using a spray or a foam
- A61B 2218/005 . . . using gas or vapor, e.g. for protection or purging
- A61B 2218/006 . . . for smoke evacuation
- A61B 2218/007 . . Aspiration
- A61B 2218/008 . . . for smoke evacuation

#### **A61B 2503/00      Evaluating a particular growth phase or type of persons or animals**

- A61B 2503/02 . Foetus
- A61B 2503/04 . Babies, e.g. for SIDS detection
- A61B 2503/045 . . Newborns, e.g. premature baby monitoring
- A61B 2503/06 . Children, e.g. for attention deficit diagnosis
- A61B 2503/08 . Elderly
- A61B 2503/10 . Athletes
- A61B 2503/12 . Healthy persons not otherwise provided for, e.g. subjects of a marketing survey
- A61B 2503/20 . Workers
- A61B 2503/22 . . Motor vehicles operators, e.g. drivers, pilots, captains
- A61B 2503/24 . . Computer workstation operators
- A61B 2503/40 . Animals



A61B 2503/42 . for laboratory research

**A61B 2505/00 Evaluating, monitoring or diagnosing in the context of a particular type of medical care**

A61B 2505/01 . Emergency care

A61B 2505/03 . Intensive care

A61B 2505/05 . Surgical care

A61B 2505/07 . Home care

A61B 2505/09 . Rehabilitation or training

**A61B 2560/00 Constructional details of operational features of apparatus; Accessories for medical measuring apparatus**

A61B 2560/02 . Operational features

A61B 2560/0204 . . of power management

A61B 2560/0209 . . . adapted for power saving

A61B 2560/0214 . . . of power generation or supply

A61B 2560/0219 . . . . of externally powered implanted units

A61B 2560/0223 . . of calibration, e.g. protocols for calibrating sensors

A61B 2560/0228 . . . using calibration standards

A61B 2560/0233 . . . . Optical standards

A61B 2560/0238 . . . Means for recording calibration data

A61B 2560/0242 . . adapted to measure environmental factors, e.g. temperature, pollution

A61B 2560/0247 . . . for compensation or correction of the measured physiological value

A61B 2560/0252 . . . . using ambient temperature

A61B 2560/0257 . . . . using atmospheric pressure

A61B 2560/0261 . . . . using hydrostatic pressure

A61B 2560/0266 . . for monitoring or limiting apparatus function

A61B 2560/0271 . . . using a remote monitoring unit

A61B 2560/0276 . . . Determining malfunction

A61B 2560/028 . . . Arrangements to prevent overuse, e.g. by counting the number of uses

A61B 2560/0285 . . . . Apparatus for single use

A61B 2560/029 . . adapted for auto-initiation

A61B 2560/0295 . . adapted for recording user messages or annotations

A61B 2560/04 . Constructional details of apparatus

A61B 2560/0406 . . specially shaped apparatus housings

A61B 2560/0412 . . . Low-profile patch shaped housings

A61B 2560/0418 . . . Pen-shaped housings

A61B 2560/0425 . . . Ergonomically shaped housings ([A61B 2560/0418 takes precedence](#))

A61B 2560/0431 . . Portable apparatus, e.g. comprising a handle or case

A61B 2560/0437 . . Trolley or cart-type apparatus

A61B 2560/0443 . . Modular apparatus

- A61B 2560/045 . . . with a separable interface unit, e.g. for communication
- A61B 2560/0456 . . Apparatus provided with a docking unit
- A61B 2560/0462 . . Apparatus with built-in sensors
- A61B 2560/0468 . . . Built-in electrodes
- A61B 2560/0475 . . Special features of memory means, e.g. removable memory cards
- A61B 2560/0481 . . . in implanted apparatus
- A61B 2560/0487 . . Special user inputs or interfaces
- A61B 2560/0493 . . . controlled by voice
- A61B 2560/06 . Accessories for medical measuring apparatus
- A61B 2560/063 . . Devices specially adapted for delivering implantable medical measuring apparatus
- A61B 2560/066 . . . catheters therefor

**A61B 2562/00**      **Details of sensors; Constructional details of sensor housings or probes; Accessories for sensors**

- A61B 2562/02 . Details of sensors specially adapted for in-vivo measurements
- A61B 2562/0204 . . Acoustic sensors
- A61B 2562/0209 . . Special features of electrodes classified in [A61B 5/04001](#), [A61B 5/0408](#), [A61B 5/042](#), [A61B 5/0478](#), [A61B 5/0492](#) or [A61B 5/053](#) (electrodes for stimulation [A61N 1/04](#); electrodes for electrosurgery [A61B 18/14](#))
- A61B 2562/0214 . . . Capacitive electrodes
- A61B 2562/0219 . . Inertial sensors, e.g. accelerometers, gyroscopes, tilt switches
- A61B 2562/0223 . . Magnetic field sensors
- A61B 2562/0228 . . Microwave sensors
- A61B 2562/0233 . . Special features of optical sensors or probes classified in [A61B 5/00](#)
- A61B 2562/0238 . . . Optical sensor arrangements for performing transmission measurements on body tissue
- A61B 2562/0242 . . . for varying or adjusting the optical path length in the tissue
- A61B 2562/0247 . . Pressure sensors
- A61B 2562/0252 . . Load cells
- A61B 2562/0257 . . Proximity sensors
- A61B 2562/0261 . . Strain gauges
- A61B 2562/0266 . . . Optical strain gauges
- A61B 2562/0271 . . Thermal or temperature sensors
- A61B 2562/0276 . . . comprising a thermosensitive compound
- A61B 2562/028 . . Micro-scale sensors, e.g. electromechanical sensors [MEMS]
- A61B 2562/0285 . . Nano-scale sensors
- A61B 2562/029 . . Humidity sensors
- A61B 2562/0295 . . Strip shaped analyte sensors for apparatus classified in [A61B 5/145](#) or [A61B 5/157](#) (disposable multilayered or laminated electrodes [G01N 27/307](#); details of handling chemical test elements [G01N 33/4875](#))
- A61B 2562/04 . Arrangements of multiple sensors of the same type

- A61B 2562/043 . . . in a linear array
- A61B 2562/046 . . . in a matrix array
- A61B 2562/06 . Arrangements of multiple sensors of different types
- A61B 2562/063 . . . in a linear array
- A61B 2562/066 . . . in a matrix array
- A61B 2562/08 . Sensors provided with means for identification, e.g. barcodes or memory chips
- A61B 2562/085 . . . combined with means for recording calibration data
- A61B 2562/12 . Manufacturing methods specially adapted for producing sensors for in-vivo measurements
- A61B 2562/125 . . . characterised by the manufacture of electrodes
- A61B 2562/14 . Coupling media or elements to improve sensor contact with skin or tissue
- A61B 2562/143 . . . for coupling microwaves
- A61B 2562/146 . . . for optical coupling
- A61B 2562/16 . Details of sensor housings or probes; Details of structural supports for sensors  
([A61B 2560/0462 takes precedence](#))
- A61B 2562/162 . . . Capsule shaped sensor housings, e.g. for swallowing or implantation
- A61B 2562/164 . . . the sensor is mounted in or on a conformable substrate or carrier
- A61B 2562/166 . . . the sensor is mounted on a specially adapted printed circuit board
- A61B 2562/168 . . . Fluid filled sensor housings
- A61B 2562/18 . Shielding or protection of sensors from environmental influences, e.g. protection from mechanical damage
- A61B 2562/182 . . . Electrical shielding, e.g. using a Faraday cage
- A61B 2562/185 . . . Optical shielding, e.g. baffles
- A61B 2562/187 . . . Strain relief means
- A61B 2562/22 . Arrangements of medical sensors with cables or leads; Connectors or couplings specifically adapted for medical sensors
- A61B 2562/221 . . . Arrangements of sensors with cables or leads, e.g. cable harnesses
- A61B 2562/222 . . . . Electrical cables or leads therefor, e.g. coaxial cables or ribbon cables
- A61B 2562/223 . . . . Optical cables therefor
- A61B 2562/224 . . . . Cables for conducting fluids therefor
- A61B 2562/225 . . . Connectors or couplings
- A61B 2562/226 . . . . comprising means for identifying the connector, e.g. to prevent incorrect connection to socket
- A61B 2562/227 . . . . Sensors with electrical connectors
- A61B 2562/228 . . . . Sensors with optical connectors
- A61B 2562/24 . Hygienic packaging for medical sensors; Maintaining apparatus for sensor hygiene
- A61B 2562/242 . . . Packaging, i.e. for packaging the sensor or apparatus before use
- A61B 2562/245 . . . Means for cleaning the sensor in-situ or during use, e.g. hygienic wipes
- A61B 2562/247 . . . Hygienic covers, i.e. for covering the sensor or apparatus during use

- A61B 2576/00**      **Medical imaging apparatus involving image processing or analysis**  
([A61B 1/00009](#), [A61B 6/52](#) and [A61B 8/52](#) take precedence; image processing per se [G06T](#); details of algorithms for analysing medical images [G06T 7/0012](#))
- [A61B 2576/02](#)      . specially adapted for a particular organ or body part
- [A61B 2576/023](#)      . . for the heart
- [A61B 2576/026](#)      . . for the brain