

CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS (NOTES omitted)

INSTRUMENTS

G01 MEASURING; TESTING (NOTES omitted)

G01B MEASURING LENGTH, THICKNESS OR SIMILAR LINEAR DIMENSIONS; MEASURING ANGLES; MEASURING AREAS; MEASURING IRREGULARITIES OF SURFACES OR CONTOURS

NOTES

1. This subclass covers measuring of position or displacement in terms of linear or angular dimensions.
2. In this subclass, the groups are distinguished by the measurement technique which is of major importance. Thus, the mere application of other techniques or means for giving a final indication does not affect the classification.
3. Attention is drawn to the Notes following the title of class [G01](#).
4. Machines operated on similar principles to the hand-held devices specified in this subclass are classified with these devices.
5. Measuring arrangements or details thereof covered by two or more of groups [G01B 3/00](#) - [G01B 17/00](#) are classified in group [G01B 21/00](#) if no single other group can be selected as being predominantly applicable.

WARNING

{ In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme. }

1/00	Measuring instruments characterised by the selection of material therefor	2003/1017 {acting on the whole coil}
		3/102 . . . Means for damping
3/00	Measuring instruments characterised by the use of mechanical techniques	2003/1023 . . . {Winding mechanisms}
		2003/1025 {operated manually, e.g. crank-handles}
		2003/1028 {operated by electric motors}
		2003/103 {operated by springs}
		2003/1033 . . . {Means for activating the locking, braking or releasing of the tape, e.g. buttons}
		2003/1035 {by pivotal operation}
		2003/1038 {by translatory motion operation}
3/002	. {Details}	3/1041 . . characterised by casings
3/004	. . {Scales; Graduations}	3/1043 . . . Details of internal structure thereof, e.g. means for coupling separately moulded casing halves
3/006	. . . {having both coarse and fine graduation}	3/1046 . . . Details of external structure thereof, e.g. shapes for ensuring firmer hold
3/008	. . {Arrangements for controlling the measuring force}	3/1048 Integrated means for affixing or holding
3/02	. Rulers with scales or marks for direct reading (measuring tapes G01B 3/10)	2003/1051 . . . {specially adapted for two or more tapes within the same casing}
3/04	. . rigid	2003/1053 . . . {Tape exit slots, e.g. shape or exit direction}
3/06	. . . folding	3/1056 . . Tape end arrangements, e.g. end-hooks
3/08	. . . extensible	2003/1058 . . {Manufacturing or assembling methods}
3/10	. Measuring tapes	3/1061 . . Means for displaying or assisting reading of length measurement
3/1003	. . characterised by structure or material; characterised by layout or indicia	2003/1064 . . . {Windows, e.g. lenses, glasses or cross-hairs}
3/1004	. . . {Measuring tapes without casings}	2003/1066 . . . {Index sliding on tape}
3/1005	. . Means for controlling winding or unwinding of tapes	3/1069 . . . Electronic or mechanical display arrangements
3/1007	. . . Means for locking	3/1071 . . Separate means for supporting or affixing measuring tapes
2003/101	. . . . {acting on the drum}	2003/1074 . . . {associated with the casings}
2003/1012	. . . . {engaging the tape in a direction parallel to the tape itself}	2003/1076 . . . {associated with the end-hooks}
2003/1015	. . . . {engaging the tape in a direction transversal to the tape itself}	2003/1079 . . . {associated with the tapes}

- 3/1084 . . Tapes combined with arrangements for functions other than measuring lengths
- 2003/1087 . . . {for illuminating}
- 3/1089 . . . for marking, drawing or cutting
- 3/1092 . . . for performing length measurements and at least one other measurement of a different nature, e.g. bubble-type level
- 3/1094 . . . for recording information or for performing calculations
- 2003/1097 . . . {Tape measures with an adhesive surface}
- 3/11 . Chains for measuring length
- 3/12 . Measuring wheels
- 3/14 . Templates for checking contours {(templates for mounting doors or windows E04F 21/0007)}
- 3/16 . Compasses, i.e. with a pair of pivoted arms
- 3/163 . . {without measuring scale}
- 3/166 . . {provided with a measuring scale}
- 3/18 . Micrometers
- 3/20 . Slide gauges
- 3/205 . . {provided with a counter for digital indication of the measured dimension}
- 3/22 . Feeler-pin gauges, e.g. dial gauges (for measuring contours or curvatures G01B 5/20)
- 3/24 . . with open yoke, i.e. calipers
- 3/26 . . Plug gauges
- 3/28 . . Depth gauges
- 3/30 . Bars, blocks, or strips in which the distance between a pair of faces is fixed, although it may be preadjustable, e.g. end measure, feeler strip
- 3/303 . . {pre-adjustable, e.g. by means of micrometerscrew}
- 3/306 . . . {with inclined slide plane}
- 3/32 . . Holders therefor
- 3/34 . Ring or other apertured gauges, e.g. "go/no-go" gauge
- 3/36 . . for external screw-threads
- 3/38 . Gauges with an open yoke and opposed faces, i.e. calipers, in which the internal distance between the faces is fixed, although it may be preadjustable
- 3/40 . . for external screw-threads
- 3/42 . . of limit-gauge type, i.e. "go/no-go" (G01B 3/40 takes precedence)
- 3/44 . . . preadjustable for wear or tolerance
- 3/46 . Plug gauges for internal dimensions with engaging surfaces which are at a fixed distance, although they may be preadjustable
- 3/48 . . for internal screw-threads
- 3/50 . . of limit-gauge type, i.e. "go/no-go" (G01B 3/48 takes precedence)
- 3/52 . . . preadjustable for wear or tolerance
- 3/56 . Gauges for measuring angles or tapers, e.g. conical calipers
- 3/563 . . {Protractors (for use in geodesy G01C 1/00; protractor heads for drawing machines B43L 13/08)}
- 3/566 . . {Squares}

5/00

Measuring arrangements characterised by the use of mechanical techniques

NOTE

When classifying in this group, specific mechanical measuring instruments can be further classified in group [G01B 3/00](#).

- 5/0002 . {Arrangements for supporting, fixing or guiding the measuring instrument or the object to be measured}
- 5/0004 . . {Supports (G01B 5/025 takes precedence)}
- 5/0007 . . {Surface plates}
- 5/0009 . . {Guiding surfaces; Arrangements compensating for non-linearity there-of}
- 5/0011 . {Arrangements for eliminating or compensation of measuring errors due to temperature or weight}
- 5/0014 . . {due to temperature (on machine tools B23Q 11/0003)}
- 5/0016 . . {due to weight (on machine tools B23Q 11/001)}
- 5/0018 . {for measuring key-ways}
- 5/0021 . {for measuring the volumetric dimension of an object}
- 5/0023 . {Measuring of sport goods, e.g. bowling accessories, golfclubs, game balls}
- 5/0025 . {Measuring of vehicle parts (G01B 5/003 takes precedence)}
- 5/0028 . . {Brakes, brakeshoes, clutches}
- 5/003 . {Measuring of motor parts}
- 5/0032 . . {Valves, actuating devices for valves}
- 5/0035 . {Measuring of dimensions of trees}
- 5/0037 . {Measuring of dimensions of welds}
- 5/004 . for measuring coordinates of points
- 5/008 . . using coordinate measuring machines
- 5/012 . . . Contact-making feeler heads therefor
- 5/016 Constructional details of contacts
- 5/02 . for measuring length, width or thickness (G01B 5/004, G01B 5/008 take precedence)
- 5/025 . . {Measuring of circumference; Measuring length of ring-shaped articles (G01B 5/0035 takes precedence)}
- 5/04 . . specially adapted for measuring length or width of objects while moving
- 5/043 . . . {for measuring length}
- 5/046 . . . {for measuring width}
- 5/06 . . for measuring thickness
- 5/061 . . . {height gauges}
- 5/063 {provided with a slide which may be moved along a vertical support by means of a micrometer screw}
- 5/065 {provided with a slide which may be fixed along its vertical support in discrete calibrated position}
- 5/066 . . . {of coating}
- 5/068 . . . {of objects while moving (G01B 5/066 takes precedence)}
- 5/08 . for measuring diameters {(G01B 5/0035 takes precedence; measuring radius of curvature G01B 5/213)}
- 5/10 . . of objects while moving
- 5/12 . . internal diameters
- 5/14 . for measuring distance or clearance between spaced objects or spaced apertures (G01B 5/24 takes precedence)
- 5/143 . . {between holes on a workpiece}

- 5/146 . . {measuring play on bearings}
- 5/16 . . between a succession of regularly spaced objects or regularly spaced apertures
- 5/163 . . . {of screw-threads}
- 5/166 . . . {of gear teeth}
- 5/18 . for measuring depth
- 5/20 . for measuring contours or curvatures
- 5/201 . . {for measuring roundness}
- 5/202 . . {of gears}
- 5/204 . . {of screw-threads}
- 5/205 . . {of turbine blades or propellers}
- 5/207 . . using a plurality of fixed, simultaneously operating transducers ([G01B 5/213](#) - [G01B 5/22](#) take precedence)
- 5/213 . . for measuring radius of curvature
- 5/22 . . Spherometers
- 5/24 . for measuring angles or tapers; for testing the alignment of axes
- 5/241 . . {for measuring conicity}
- 5/242 . . {Sine bars; Sine plates}
- 5/243 . . {for measuring chamfer ([see G01B 3/56](#))}
- 5/245 . . for testing perpendicularity
- 5/25 . . for testing the alignment of axes
- 5/252 . . . for measuring eccentricity, i.e. lateral shift between two parallel axes
- 5/255 . . for testing wheel alignment
- 5/26 . for measuring areas, e.g. planimeters
- 5/28 . for measuring roughness or irregularity of surfaces
- 5/285 . . {for controlling evenness}
- 5/30 . for measuring the deformation in a solid, e.g. mechanical strain gauge
- 7/00 Measuring arrangements characterised by the use of electric or magnetic techniques**
- 7/001 . {Constructional details of gauge heads ([G01B 7/012](#) takes precedence)}
- 7/002 . {Constructional details of contacts for gauges actuating one or more contacts ([G01B 7/016](#) takes precedence)}
- 7/003 . {for measuring position, not involving coordinate determination ([coordinate measuring G01B 7/004](#))}
- 7/004 . for measuring coordinates of points
- 7/008 . . using coordinate measuring machines
- 7/012 . . . Contact-making feeler heads therefor
- 7/016 Constructional details of contacts
- 7/02 . for measuring length, width or thickness ([G01B 7/004](#), [G01B 7/12](#) take precedence)
- 7/023 . . {for measuring distance between sensor and object ([G01B 7/082](#) and [G01B 7/102](#) take precedence)}
- 7/026 . . {for measuring length of cable, band or the like, which has been paid out, e.g. from a reel ([measuring length of objects while moving G01B 7/04](#))}
- 7/04 . . specially adapted for measuring length or width of objects while moving
- 7/042 . . . {for measuring length}
- 7/044 {using capacitive means}
- 7/046 {using magnetic means}
- 7/048 . . . {for measuring width}
- 7/06 . . for measuring thickness {([measuring during the manufacture of coatings C23C 14/54](#))}
- 7/063 . . . {using piezoelectric resonators}
- 7/066 {for measuring thickness of coating (apparatus or processes for the manufacture of piezoelectric or electrostrictive resonators for obtaining desired frequency [H03H 3/04](#))}
- 7/08 . . . {using capacitive means}
- 7/082 {Height gauges}
- 7/085 {for measuring thickness of coating}
- 7/087 {for measuring of objects while moving ([G01B 7/085](#) takes precedence)}
- 7/10 . . . {using magnetic means, e.g. by measuring change of reluctance}
- 7/102 {Height gauges}
- 7/105 {for measuring thickness of coating}
- 7/107 {for measuring objects while moving ([G01B 7/105](#) takes precedence)}
- 7/12 . for measuring diameters
- 7/125 . . {of objects while moving}
- 7/13 . . Internal diameters
- 7/14 . for measuring distance or clearance between spaced objects or spaced apertures ([G01B 7/30](#) takes precedence)
- 7/142 . . {between holes on a workpiece}
- 7/144 . . {Measuring play on bearings}
- 7/146 . . {Measuring on gear teeth}
- 7/148 . . {Measuring on screw threads}
- 7/15 . . being regularly spaced
- 7/16 . for measuring the deformation in a solid, e.g. by resistance strain gauge
- 7/18 . . {using change in resistance}
- 7/20 . . . {formed by printed-circuit technique}
- 7/22 . . {using change in capacitance}
- 7/24 . . using change in magnetic properties
- 7/26 . for measuring depth
- 7/28 . for measuring contours or curvatures
- 7/281 . . {for measuring contour or curvature along an axis, e.g. axial curvature of a pipeline or along a series of feeder rollers}
- 7/282 . . {for measuring roundness}
- 7/283 . . {of gears}
- 7/284 . . {of screw-threads}
- 7/285 . . {of propellers or turbine blades}
- 7/286 . . {Spherometers}
- 7/287 . . using a plurality of fixed, simultaneously operating transducers ([G01B 7/293](#) takes precedence)
- 7/293 . . for measuring radius of curvature
- 7/30 . for measuring angles or tapers; for testing the alignment of axes
- 7/305 . . for testing perpendicularity
- 7/31 . . for testing the alignment of axes
- 7/312 . . . for measuring eccentricity, i.e. lateral shift between two parallel axes
- 7/315 . . for testing wheel alignment
- 7/32 . for measuring areas
- 7/34 . for measuring roughness or irregularity of surfaces
- 7/345 . . {for measuring evenness}

9/00 Measuring instruments characterised by the use of optical techniques

NOTE

When classifying in this group, optical arrangements for measuring specific parameters can be further classified in group [G01B 11/00](#).

- 9/02 . Interferometers
- 9/02001 . . characterised by controlling or generating intrinsic radiation properties
- 9/02002 . . . using two or more frequencies
- 9/02003 using beat frequencies
- 9/02004 using frequency scans
- 9/02005 {using discrete frequency stepping or switching}
- 9/02007 . . . {Two or more frequencies or sources used for interferometric measurement (using only beat [G01B 9/02003](#))}
- 9/02008 {by using a frequency comb}
- 9/02009 {by using two or more low coherence lengths using different or varying spectral width}
- 9/0201 . . . {using temporal phase variation}
- 9/02011 . . . {using temporal polarization variation}
- 9/02012 . . . {using temporal intensity variation}
- 9/02014 {by using pulsed light}
- 9/02015 . . characterised by the beam path configuration
- 9/02016 . . . {contacting two or more objects}
- 9/02017 . . . with multiple interactions between the target object and light beams, e.g. beam reflections occurring from different locations
- 9/02018 Multipass interferometers, e.g. double-pass
- 9/02019 {contacting different points on same face of object}
- 9/02021 {contacting different faces of object, e.g. opposite faces}
- 9/02022 . . . {contacting one object by grazing incidence}
- 9/02023 . . . {Indirect probing of object, e.g. via influence on cavity or fibre}
- 9/02024 . . . {Measuring in transmission, i.e. light traverses the object}
- 9/02025 . . . {Interference between three or more discrete surfaces}
- 9/02027 . . . {Two or more interferometric channels or interferometers}
- 9/02028 {Two or more reference or object arms in one interferometer}
- 9/02029 . . . {Combination with non-interferometric systems, i.e. for measuring the object}
- 9/0203 {With imaging systems}
- 9/02031 {With non-optical systems, e.g. tactile}
- 9/02032 . . . {generating a spatial carrier frequency, e.g. by creating lateral or angular offset between reference and object beam ([shearing interferometers G01B 9/02098](#))}
- 9/02034 . . {characterised by particularly shaped beams or wavefronts}
- 9/02035 . . . {Shaping the focal point, e.g. elongated focus}
- 9/02036 {by using chromatic effects, e.g. a wavelength dependent focal point}
- 9/02037 {by generating a transverse line focus}
- 9/02038 . . . {Shaping the wavefront, e.g. generating a spherical wavefront}
- 9/02039 {by matching the wavefront with a particular object surface shape}
- 9/02041 . . {characterised by particular imaging or detection techniques}
- 9/02042 . . . {Confocal imaging}
- 9/02043 . . . {Imaging of the Fourier or pupil or back focal plane, i.e. angle resolved imaging}
- 9/02044 . . . {Imaging in the frequency domain, e.g. by using a spectrometer}
- 9/02045 . . . {using the Doppler effect}
- 9/02047 . . . {using digital holographic imaging, e.g. lensless phase imaging without hologram in the reference path}
- 9/02048 . . . {Rough and fine measurement}
- 9/02049 . . {characterised by particular mechanical design details}
- 9/0205 . . . {of probe head}
- 9/02051 . . . {Integrated design, e.g. on-chip or monolithic}
- 9/02052 . . . {Protecting, e.g. shock absorbing, arrangements}
- 9/02054 . . . {Hand held}
- 9/02055 . . Reduction or prevention of errors; Testing; Calibration
- 9/02056 . . . Passive reduction of errors
- 9/02057 {by using common path configuration, i.e. reference and object path almost entirely overlapping}
- 9/02058 {by particular optical compensation or alignment elements, e.g. dispersion compensation}
- 9/02059 {Reducing effect of parasitic reflections, e.g. cyclic errors}
- 9/02061 Reduction or prevention of effects of tilts or misalignment
- 9/02062 . . . {Active error reduction, i.e. varying with time}
- 9/02063 {by particular alignment of focus position, e.g. dynamic focussing in optical coherence tomography}
- 9/02064 {by particular adjustment of coherence gate, i.e. adjusting position of zero path difference in low coherence interferometry}
- 9/02065 {using a second interferometer before or after measuring interferometer}
- 9/02067 {by electronic control systems, i.e. using feedback acting on optics or light}
- 9/02068 {Auto-alignment of optical elements}
- 9/02069 {Synchronization of light source or manipulator and detector}
- 9/0207 . . . {Error reduction by correction of the measurement signal based on independently determined error sources, e.g. using a reference interferometer}
- 9/02071 {by measuring path difference independently from interferometer}
- 9/02072 {by calibration or testing of interferometer}
- 9/02074 {of the detector}
- 9/02075 {of particular errors}
- 9/02076 {Caused by motion}
- 9/02077 {of the object}
- 9/02078 {Caused by ambiguity}
- 9/02079 {Quadrature detection, i.e. detecting relatively phase-shifted signals}
- 9/02081 {simultaneous quadrature detection, e.g. by spatial phase shifting}

9/02082	. . . . {Caused by speckles}	11/0625	. . . . {with measurement of absorption or reflection}
9/02083	. . {characterised by particular signal processing and presentation}	11/0633	. . . . . {using one or more discrete wavelengths}
9/02084	. . . {Processing in the Fourier or frequency domain when not imaged in the frequency domain}	11/0641	. . . . . {with measurement of polarization}
9/02085	. . . {Combining two or more images of different regions}	11/065	. . . . . {using one or more discrete wavelengths}
9/02087	. . . {Combining two or more images of the same region}	11/0658	. . . . . {with measurement of emissivity or reradiation}
9/02088	. . . {Matching signals with a database}	11/0666	. . . . . {using an exciting beam and a detection beam including surface acoustic waves [SAW]}
9/02089	. . . {Displaying the signal, e.g. for user interaction}	11/0675	. . . . . {using interferometry}
9/0209	. . Low-coherence interferometers	11/0683	. . . . . {measurement during deposition or removal of the layer}
9/02091	. . . Tomographic interferometers, e.g. based on optical coherence	11/0691	. . . {of objects while moving (G01B 11/0616 takes precedence)}
9/02092	. . {Self-mixing interferometers, i.e. feedback of light from object into laser cavity}	11/08	. for measuring diameters
9/02094	. . {Speckle interferometers, i.e. for detecting changes in speckle pattern}	11/10	. . of objects while moving
9/02095	. . . {detecting deformation from original shape}	11/105	. . . {using photoelectric detection means}
9/02096	. . . {detecting a contour or curvature}	11/12	. . internal diameters
9/02097	. . Self-interferometers	11/14	. for measuring distance or clearance between spaced objects or spaced apertures (G01B 11/26 takes precedence; rangefinders G01C 3/00)
9/02098	. . . Shearing interferometers	11/16	. for measuring the deformation in a solid, e.g. optical strain gauge
9/021	. . using holographic techniques	11/161	. . {by interferometric means}
9/023	. . . for contour producing (G01B 9/025 - G01B 9/029 take precedence)	11/162	. . . {by speckle- or shearing interferometry}
9/025	. . . Double exposure technique	11/164	. . . {by holographic interferometry}
9/027	. . . in real time	11/165	. . {by means of a grating deformed by the object}
9/029	. . . by time averaging	11/167	. . {by projecting a pattern on the object}
9/04	. Measuring microscopes	11/168	. . {by means of polarisation}
9/06	. Measuring telescopes	11/18	. . {using photoelastic elements}
9/08	. Optical projection comparators	11/20	. . {using brittle lacquer}
9/10	. Goniometers for measuring angles between surfaces	11/22	. for measuring depth
11/00	Measuring arrangements characterised by the use of optical techniques	11/24	. for measuring contours or curvatures
	NOTE	11/2408	. . {for measuring roundness}
	When classifying in this group, specific optical measuring instruments can be further classified in group G01B 9/00 .	11/2416	. . {of gears (optical projection profile comparators G01B 9/08)}
11/002	. {for measuring two or more coordinates}	11/2425	. . {of screw-threads}
11/005	. . {coordinate measuring machines}	11/2433	. . {for measuring outlines by shadow casting}
11/007	. . . {feeler heads therefor}	11/2441	. . {using interferometry}
11/02	. for measuring length, width or thickness (G01B 11/08 takes precedence)	11/245	. . using a plurality of fixed, simultaneously operating transducers (G01B 11/2408 - G01B 11/2425 , } G01B 11/255 take precedence)
11/022	. . {by means of tv-camera scanning}	11/25	. . by projecting a pattern, e.g. {one or more lines,} moiré fringes on the object (G01B 11/255 takes precedence ; image analysis for depth or shape recovery G06T 7/50)
11/024	. . {by means of diode-array scanning}	11/2504	. . . {Calibration devices}
11/026	. . {by measuring distance between sensor and object (G01B 11/0608 takes precedence)}	11/2509	. . . {Color coding}
11/028	. . {by measuring lateral position of a boundary of the object (G01B 11/022 , G01B 11/024 , G01B 11/04 take precedence)}	11/2513	. . . {with several lines being projected in more than one direction, e.g. grids, patterns}
11/03	. . by measuring coordinates of points	11/2518	. . . {Projection by scanning of the object}
11/04	. . specially adapted for measuring length or width of objects while moving	11/2522	. . . . {the position of the object changing and being recorded}
11/043	. . . {for measuring length}	11/2527	. . . . . {with phase change by in-plane movement of the pattern}
11/046	. . . {for measuring width}	11/2531	. . . {using several gratings, projected with variable angle of incidence on the object, and one detection device}
11/06	. . for measuring thickness {; e.g. of sheet material (thickness measurement by thermal means G01B 21/085)}	11/2536	. . . {using several gratings with variable grating pitch, projected on the object with the same angle of incidence}
11/0608	. . . {Height gauges}		
11/0616	. . . {of coating}		

- 11/254 . . . {Projection of a pattern, viewing through a pattern, e.g. moiré}
- 11/2545 . . . {with one projection direction and several detection directions, e.g. stereo}
- 11/255 . . for measuring radius of curvature {(measuring diameter G01B 11/08)}
- 11/26 . for measuring angles or tapers; for testing the alignment of axes
- 11/27 . . for testing the alignment of axes {(means for centering or aligning a light guide within a ferrule G02B 6/3834)}
- 11/272 . . . {using photoelectric detection means}
- 11/275 . . for testing wheel alignment
- 11/2755 . . . {using photoelectric detection means}
- 11/28 . for measuring areas
- 11/285 . . {using photoelectric detection means}
- 11/30 . for measuring roughness or irregularity of surfaces
- 11/303 . . {using photoelectric detection means}
- 11/306 . . {for measuring evenness}

13/00 Measuring arrangements characterised by the use of fluids

- 13/02 . for measuring length, width or thickness (G01B 13/08 takes precedence)
- 13/03 . . by measuring coordinates of points
- 13/04 . . specially adapted for measuring length or width of objects while moving
- 13/06 . . for measuring thickness
- 13/065 . . . {Height gauges}
- 13/08 . for measuring diameters
- 13/10 . . internal diameters
- 13/12 . for measuring distance or clearance between spaced objects or spaced apertures (G01B 13/18 takes precedence)
- 13/14 . for measuring depth
- 13/16 . for measuring contours or curvatures
- 13/18 . for measuring angles or tapers; for testing the alignment of axes
- 13/19 . . for testing the alignment of axes
- 13/195 . . for testing wheel alignment
- 13/20 . for measuring areas, e.g. pneumatic planimeters
- 13/22 . for measuring roughness or irregularity of surfaces
- 13/24 . for measuring the deformation in a solid

15/00 Measuring arrangements characterised by the use of electromagnetic waves or particle radiation, e.g. by the use of microwaves, X-rays, gamma rays or electrons (characterised by the use of optical techniques G01B 9/00, G01B 11/00)

- 15/02 . for measuring thickness
- 15/025 . . {by measuring absorption}
- 15/04 . for measuring contours or curvatures
- 15/045 . . {by measuring absorption}
- 15/06 . for measuring the deformation in a solid
- 15/08 . for measuring roughness or irregularity of surfaces

17/00 Measuring arrangements characterised by the use of infrasonic, sonic or ultrasonic vibrations

- 17/02 . for measuring thickness
- 17/025 . . {for measuring thickness of coating}
- 17/04 . for measuring the deformation in a solid, e.g. by vibrating string
- 17/06 . for measuring contours or curvatures
- 17/08 . for measuring roughness or irregularity of surfaces

21/00 Measuring arrangements or details thereof, where the measuring technique is not covered by the other groups of this subclass, unspecified or not relevant

NOTE

Measuring arrangements or details thereof covered by two or more of groups [G01B 3/00](#) - [G01B 17/00](#) are classified in this group if no single other group can be selected as being predominantly applicable.

- 21/02 . for measuring length, width, or thickness (G01B 21/10 takes precedence)
- 21/04 . . by measuring coordinates of points
- 21/042 . . . {Calibration or calibration artifacts (G01B 3/30, G01B 9/02072 take precedence)}
- 21/045 . . . {Correction of measurements (G01B 9/02055 takes precedence)}
- 21/047 . . . {Accessories, e.g. for positioning, for tool-setting, for measuring probes}
- 21/06 . . specially adapted for measuring length or width of objects while moving
- 21/065 . . . {for stretchable materials}
- 21/08 . . for measuring thickness
- 21/085 . . . {using thermal means}
- 21/10 . for measuring diameters
- 21/12 . . of objects while moving
- 21/14 . . internal diameters {(of boreholes or wells E21B 47/08)}
- 21/16 . for measuring distance of clearance between spaced objects
- 21/18 . for measuring depth
- 21/20 . for measuring contours or curvatures, e.g. determining profile
- 21/22 . for measuring angles or tapers; for testing the alignment of axes
- 21/24 . . for testing alignment of axes
- 21/26 . . for testing wheel alignment
- 21/28 . for measuring areas
- 21/30 . for measuring roughness or irregularity of surfaces
- 21/32 . for measuring the deformation in a solid

2210/00 Aspects not specifically covered by any group under [G01B](#), e.g. of wheel alignment, caliper-like sensors

- 2210/10 . Wheel alignment
- 2210/12 . . Method or fixture for calibrating the wheel aligner
- 2210/14 . . One or more cameras or other optical devices capable of acquiring a two-dimensional image
- 2210/143 . . . One or more cameras on each side of a vehicle in the main embodiment
- 2210/146 . . . Two or more cameras imaging the same area
- 2210/16 . . Active or passive device attached to the chassis of a vehicle
- 2210/18 . . Specially developed for using with motorbikes or other two-wheeled vehicles
- 2210/20 . . Vehicle in a state of transitory motion
- 2210/22 . . Wheels in a state of motion supported on rollers, rotating platform or other structure substantially capable of only one degree of rotational freedom
- 2210/24 . . Specially developed for using with trucks or other heavy-duty vehicles

- 2210/26 . . Algorithms, instructions, databases, computerized methods and graphical user interfaces employed by a user in conjunction with the wheel aligner
- 2210/28 . . Beam projector and related sensors, camera, inclinometer or other active sensing or projecting device
- 2210/283 . . . Beam projectors and related sensors
- 2210/286 Projecting a light pattern on the wheel or vehicle body
- 2210/30 . . Reference markings, reflector, scale or other passive device
- 2210/303 . . . fixed to the ground or to the measuring station
- 2210/306 . . . Mirror, prism or other reflector
- 2210/40 . Caliper-like sensors
- 2210/42 . . with one or more detectors on a single side of the object to be measured and with a backing surface of support or reference on the other side
- 2210/44 . . with detectors on both sides of the object to be measured
- 2210/46 . . with one or more detectors on a single side of the object to be measured and with a transmitter on the other side
- 2210/48 . . for measurement of a wafer
- 2210/50 . Using chromatic effects to achieve wavelength-dependent depth resolution
- 2210/52 . Combining or merging partially overlapping images to an overall image
- 2210/54 . Revolving an optical measuring instrument around a body
- 2210/56 . Measuring geometric parameters of semiconductor structures, e.g. profile, critical dimensions or trench depth
- 2210/58 . Wireless transmission of information between a sensor or probe and a control or evaluation unit
- 2210/60 . Unique sensor identification
- 2210/62 . Support for workpiece air film or bearing with positive or negative pressure
- 2210/64 . Interconnection or interfacing through or under capping or via rear of substrate in microsenors
- 2210/66 . Rock or ground anchors having deformation measuring means
- 2290/00 Aspects of interferometers not specifically covered by any group under [G01B 9/02](#)**
- 2290/10 . Astronomic interferometers
- 2290/15 . Cat eye, i.e. reflection always parallel to incoming beam
- 2290/20 . Dispersive element for generating dispersion
- 2290/25 . Fabry-Perot in interferometer, e.g. etalon, cavity
- 2290/30 . Grating as beam-splitter
- 2290/35 . Mechanical variable delay line
- 2290/40 . Non-mechanical variable delay line
- 2290/45 . Multiple detectors for detecting interferometer signals
- 2290/50 . Pupil plane manipulation, e.g. filtering light of certain reflection angles
- 2290/55 . Quantum effects
- 2290/60 . Reference interferometer, i.e. additional interferometer not interacting with object
- 2290/65 . Spatial scanning object beam
- 2290/70 . Using polarization in the interferometer