

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### INSTRUMENTS

#### G01 MEASURING (counting [G06M](#)); TESTING (NOTES omitted)

**G01B MEASURING LENGTH, THICKNESS OR SIMILAR LINEAR DIMENSIONS; MEASURING ANGLES; MEASURING AREAS; MEASURING IRREGULARITIES OF SURFACES OR CONTOURS** {(measuring human body, [see the relevant places](#), where such exist, e.g. [A41H 1/00](#), [A43D 1/02](#), [A61B 5/103](#); measuring appliances combined with walking-sticks [A45B 3/08](#); sorting according to dimensions [B07](#); tool-setting or drawing instruments not specially modified for measuring [B23B 49/00](#), [B23Q 15/00](#) - [B23Q 17/00](#), [B43L](#); combinations of measuring devices with writing-appliances [B43K 29/08](#); geodetical, nautical or aeronautical measuring, surveying, rangefinding [G01C](#); photogrammetry [G01C 11/00](#); measuring force or stress, in general [G01L 1/00](#); investigating or analysing particle size, investigating or analysing surface area of porous material [G01N](#); measuring position, distance or direction, in general, by reception or emission of radiowaves or other waves and based on propagation effects, e.g. Doppler effect, propagation time, direction of propagation [G01S](#); geophysical measuring [G01V](#); measuring length or roll diameter of film in cameras or projectors [G03B 1/60](#); combinations of measuring devices with means for controlling or regulating [G05](#); methods or arrangements for converting the position of a manually-operated writing or tracing member into an electrical signal [G06K 11/00](#); measuring elapsed travel of recording medium in recording and playback equipment, sensing diameter of record in autochange gramophones [G11B](#); means structurally associated with electric rotary current collectors for indicating brush wear [H01R 39/58](#); indicating consumption of electrodes in arc lamps [H05B 31/34](#))}

#### 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 means of measurement which is of major importance. Thus the mere application of other 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	3/008	. . {Arrangements for controlling the measuring force}
3/00	Instruments as specified in the subgroups and characterised by the use of mechanical measuring means (arrangements for measuring particular parameters <a href="#">G01B 5/00</a> ; devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material <a href="#">B65H 75/34</a> )	3/02	. Rulers or tapes with scales or marks for direct reading
		3/04	. . rigid
		3/06	. . . folding
		3/08	. . . extensible
		3/10	. . flexible {, e.g. tape measures}
			<b><u>NOTE</u></b>
3/002	. {Details}		{Group <a href="#">G01B 3/1002</a> takes precedence over groups <a href="#">G01B 3/1005</a> - <a href="#">G01B 3/1084</a> }
3/004	. . {Scales; Graduations}		
3/006	. . . {having both coarse and fine graduation}		

3/1002	. . .	{Tape measures without casings}	3/166	. .	{provided with a measuring scale}
3/1005	. . .	{Braking or locking members, i.e. means for preventing rotation or the tape or for holding the tape at a certain position; Damping means, i.e. means for absorbing shock due to rewinding of the tape; Winding mechanisms, e.g. springs, electrical motors, crank-handles}	3/18	. .	Micrometers
2003/1007	. . . .	{Locking members}	3/20	. .	Slide gauges
2003/101	. . . . .	{acting on the drum}	3/205	. .	{provided with a counter for digital indication of the measured dimension}
2003/1012	. . . . .	{engaging the tape in a direction parallel to the tape itself}	3/22	. .	Feeler-pin gauges, e.g. dial gauges (for determining profiles <a href="#">G01B 5/20</a> )
2003/1015	. . . . .	{engaging the tape in a direction transversal to the tape itself}	3/24	. .	with open yoke, i.e. calipers
2003/1017	. . . . .	{acting on the whole coil}	3/26	. .	Plug gauges
2003/102	. . . . .	{Damping means}	3/28	. .	Depth gauges
2003/1023	. . . . .	{Winding mechanisms}	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
2003/1025	. . . . .	{Hand operated, e.g. crank-handles}	3/303	. .	{pre-adjustable, e.g. by means of micrometerscrew}
2003/1028	. . . . .	{Electrical motors}	3/306	. . .	{with inclined slide plane}
2003/103	. . . . .	{Springs}	3/32	. .	Holders therefor
2003/1033	. . . . .	{Means for activating locking, braking or releasing of the tape, e.g. buttons}	3/34	. .	Ring or other apertured gauges, e.g. "go/no-go" gauge
2003/1035	. . . . .	{by pivotal operation}	3/36	. .	for external screw-threads
2003/1038	. . . . .	{by translatory motion operation}	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
3/1041	. . .	{Casings, i.e. structures to contain the tape}	3/40	. .	for external screw-threads
2003/1043	. . . .	{internal structure and constructional details}	3/42	. .	of limit-gauge type, i.e. "go/no-go" ( <a href="#">G01B 3/40 takes precedence</a> )
2003/1046	. . . .	{external shape; elements for generating an offset}	3/44	. . .	preadjustable for wear or tolerance
2003/1048	. . . .	{mounting elements integral to the casing for fixing to external structures or for holding, e.g. handles}	3/46	. .	Plug gauges for internal dimensions with engaging surfaces which are at a fixed distance, although they may be preadjustable
2003/1051	. . . .	{plurality of tapes within the same casing}	3/48	. .	for internal screw-threads
2003/1053	. . . .	{tape exit slot, e.g. shape or exit direction}	3/50	. .	of limit-gauge type, i.e. "go/no-go" ( <a href="#">G01B 3/48 takes precedence</a> )
3/1056	. . .	{End-hooks; Attachment of end-hooks to the tape; Distal and proximal ends of the tape}	3/52	. . .	preadjustable for wear or tolerance
2003/1058	. . .	{Manufacturing or assembling methods}	3/56	. .	Gauges for measuring angles or tapers, e.g. conical calipers
3/1061	. . .	{Means for reading or displaying length measurement}	3/563	. .	{Protractors (for use in geodesy <a href="#">G01C 1/00</a> ; protractor heads for drawing machines <a href="#">B43L 13/08</a> )}
2003/1064	. . . .	{Windows, e.g. lens, glass or cross-hairs}	3/566	. .	{Squares}
2003/1066	. . . .	{Index sliding on tape}	<b>5/00</b>		<b>Measuring arrangements characterised by the use of mechanical means (instruments of the types covered by group <a href="#">G01B 3/00</a> per se <a href="#">G01B 3/00</a>)</b>
2003/1069	. . . .	{Electronic or mechanical displaying means}	5/0002	. .	{Arrangements for supporting, fixing or guiding the measuring instrument or the object to be measured}
3/1071	. . .	{External support or attachment means, i.e. not provided in the tape measure itself}	5/0004	. .	{Supports (in general <a href="#">F16M</a> ; <a href="#">G01B 5/025</a> takes precedence)}
2003/1074	. . . .	{for the casing}	5/0007	. .	{Surface plates}
2003/1076	. . . .	{for the end-hook}	5/0009	. .	{Guiding surfaces; Arrangements compensating for non-linearity there-of}
2003/1079	. . . .	{for the tape itself}	5/0011	. .	{Arrangements for eliminating or compensation of measuring errors due to temperature or weight}
3/1082	. . .	{Details of the tape per se, e.g. scale structure, indicia on scale, particular material for the tape}	5/0014	. .	{due to temperature (on machine tools <a href="#">B23Q 11/0003</a> )}
3/1084	. . .	{Particular applications of tape measures or special adaptations thereto}	5/0016	. .	{due to weight (on machine tools <a href="#">B23Q 11/001</a> )}
2003/1087	. . . .	{for illuminating}	5/0018	. .	{for measuring key-ways}
2003/1089	. . . .	{for drawing, marking, cutting}	5/0021	. .	{for measuring the volumetric dimension of an object}
2003/1092	. . . .	{measuring instruments cooperating with the tape measure, e.g. bubble-type level}	5/0023	. .	{Measuring of sport goods, e.g. bowling accessories, golfclubs, game balls}
2003/1094	. . . .	{for calculating, recording, indicating; aide memoire}	5/0025	. .	{Measuring of vehicle parts ( <a href="#">G01B 5/003 takes precedence</a> )}
2003/1097	. . . .	{Tape measures with an adhesive surface}	5/0028	. .	{Brakes, brakeshoes, clutches}
3/11	. .	Chains for measuring length			
3/12	. .	Measuring wheels			
3/14	. .	Templates for checking contours {(templates for mounting doors or windows <a href="#">E04F 21/0007</a> )}			
3/16	. .	Compasses, i.e. with a pair of pivoted arms			
3/163	. .	{without measuring scale}			

- 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 5/08](#) 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 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. planimeter ([integrators in general G06G](#))
- 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 means**
- 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 piezo-electric resonators}
- 7/066 . . . . {for measuring thickness of coating (apparatus or processes for the manufacture of piezo-electric 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 deformation in a solid, e.g. by resistance strain gauge	9/02019	. . . . {contacting different points on same face of object}
7/18	. . {using change in resistance}	9/02021	. . . . {contacting different faces of object, e.g. opposite faces}
7/20	. . . {formed by printed-circuit technique}	9/02022	. . . {contacting one object by grazing incidence}
7/22	. . {using change in capacitance}	9/02023	. . . {Indirect probing of object, e.g. via influence on cavity or fibre}
7/24	. . using change in magnetic properties	9/02024	. . . {Measuring in transmission, i.e. light traverses the object}
7/26	. for measuring depth	9/02025	. . . {Interference between three or more discrete surfaces}
7/28	. for measuring contours or curvatures	9/02027	. . . {Two or more interferometric channels or interferometers}
7/281	. . {for measuring contour or curvature along an axis, e.g. axial curvature of a pipeline or along a series of feeder rollers}	9/02028	. . . . {Two or more reference or object arms in one interferometer}
7/282	. . {for measuring roundness}	9/02029	. . . {Combination with non-interferometric systems, i.e. for measuring the object}
7/283	. . {of gears}	9/0203	. . . . {With imaging systems}
7/284	. . {of screw-threads}	9/02031	. . . . {With non-optical systems, e.g. tactile}
7/285	. . {of propellers or turbine blades}	9/02032	. . . {generating a spatial carrier frequency, e.g. by creating lateral or angular offset between reference and object beam ( <a href="#">shearing interferometers G01B 9/02098</a> )}
7/286	. . {Spherometers}	9/02034	. . {characterised by particularly shaped beams or wavefronts}
7/287	. . using a plurality of fixed, simultaneously operating transducers ( <a href="#">G01B 7/293 takes precedence</a> )	9/02035	. . . {Shaping the focal point, e.g. elongated focus}
7/293	. . for measuring radius of curvature	9/02036	. . . . {by using chromatic effects, e.g. a wavelength dependent focal point}
7/30	. for measuring angles or tapers; for testing the alignment of axes	9/02037	. . . . {by generating a transverse line focus}
7/305	. . for testing perpendicularity	9/02038	. . . {Shaping the wavefront, e.g. generating a spherical wavefront}
7/31	. . for testing the alignment of axes	9/02039	. . . . {by matching the wavefront with a particular object surface shape}
7/312	. . . for measuring eccentricity, i.e. lateral shift between two parallel axes	9/02041	. . {characterised by particular imaging or detection techniques}
7/315	. . for testing wheel alignment	9/02042	. . . {Confocal imaging}
7/32	. for measuring areas ( <a href="#">integrators in general G06G</a> )	9/02043	. . . {Imaging of the Fourier or pupil or back focal plane, i.e. angle resolved imaging}
7/34	. for measuring roughness or irregularity of surfaces	9/02044	. . . {Imaging in the frequency domain, e.g. by using a spectrometer}
7/345	. . {for measuring evenness}	9/02045	. . . {using the Doppler effect}
<b>9/00</b>	<b>Instruments as specified in the subgroups and characterised by the use of optical measuring means (arrangements for measuring particular parameters <a href="#">G01B 11/00</a>)</b>	9/02047	. . . {using digital holographic imaging, e.g. lensless phase imaging without hologram in the reference path}
9/02	. Interferometers {for determining dimensional properties of, or relations between, measurement objects}	9/02048	. . . {Rough and fine measurement}
9/02001	. . {characterised by manipulating or generating specific radiation properties}	9/02049	. . {characterised by particular mechanical design details}
9/02002	. . . {Frequency variation}	9/0205	. . . {of probe head}
9/02003	. . . . {by using beat frequencies generated by mixing of two or more frequencies}	9/02051	. . . {Integrated design, e.g. on-chip or monolithic}
9/02004	. . . . {by using a continuous frequency sweep or scan}	9/02052	. . . {Protecting, e.g. shock absorbing, arrangements}
9/02005	. . . . {by using discrete frequency stepping or switching}	9/02054	. . . {Hand held}
9/02007	. . . {Two or more frequencies or sources used for interferometric measurement ( <a href="#">using only beat <a href="#">G01B 9/02003</a></a> )}	9/02055	. . {characterised by error reduction techniques}
9/02008	. . . . {by using a frequency comb}	9/02056	. . . {Passive error reduction, i.e. not varying during measurement, e.g. by constructional details of optics}
9/02009	. . . . {by using two or more low coherence lengths using different or varying spectral width}	9/02057	. . . . {by using common path configuration, i.e. reference and object path almost entirely overlapping}
9/0201	. . . {using temporal phase variation}	9/02058	. . . . {by particular optical compensation or alignment elements, e.g. dispersion compensation}
9/02011	. . . {using temporal polarization variation}	9/02059	. . . . {Reducing effect of parasitic reflections, e.g. cyclic errors}
9/02012	. . . {using temporal intensity variation}		
9/02014	. . . . {by using pulsed light}		
9/02015	. . {characterised by a particular beam path configuration}		
9/02016	. . . {contacting two or more objects}		
9/02017	. . . {contacting one object several times}		
9/02018	. . . . {Multiple-pass interferometer, e.g. double pass}		



- 9/02061 . . . . {Reducing or preventing effect of tilt or misalignment, e.g. of object or reference mirror}
- 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}
- 9/02083 . . . {characterised by particular signal processing and presentation}
- 9/02084 . . . {Processing in the Fourier or frequency domain when not imaged in the frequency domain}
- 9/02085 . . . {Combining two or more images of different regions}
- 9/02087 . . . {Combining two or more images of the same region}
- 9/02088 . . . {Matching signals with a database}
- 9/02089 . . . {Displaying the signal, e.g. for user interaction}
- 9/0209 . . . {Non-tomographic low coherence interferometers, e.g. low coherence interferometry, scanning white light interferometry, optical frequency domain interferometry or reflectometry}
- 9/02091 . . . {Tomographic low coherence interferometers, e.g. optical coherence tomography}
- 9/02092 . . . {Self-mixing interferometers, i.e. feedback of light from object into laser cavity}
- 9/02094 . . . {Speckle interferometers, i.e. for detecting changes in speckle pattern}
- 9/02095 . . . {detecting deformation from original shape}
- 9/02096 . . . {detecting a contour or curvature}
- 9/02097 . . . {Self-interferometers, i.e. the object beam interfering with a shifted version of itself}
- 9/02098 . . . {shearing interferometers}
- 9/021 . . . using holographic techniques
- 9/023 . . . for contour producing  
(G01B 9/025 - G01B 9/029 take precedence)
- 9/025 . . . Double exposure technique
- 9/027 . . . in real time
- 9/029 . . . by time averaging
- 9/04 . . . Measuring microscopes (microscopes in general G02B 21/00)
- 9/06 . . . Measuring telescopes (telescopes in general G02B 23/00)
- 9/08 . . . Optical projection comparators
- 9/10 . . . Goniometers for measuring angles between surfaces
- 11/00 Measuring arrangements characterised by the use of optical means (instruments of the types covered by group G01B 9/00 per se G01B 9/00)**
- 11/002 . . . {for measuring two or more coordinates}
- 11/005 . . . {coordinate measuring machines}
- 11/007 . . . {feeler heads therefor}
- 11/02 . . . for measuring length, width or thickness (G01B 11/08 takes precedence)
- 11/022 . . . {by means of tv-camera scanning}
- 11/024 . . . {by means of diode-array scanning}
- 11/026 . . . {by measuring distance between sensor and object (G01B 11/0608 takes precedence)}
- 11/028 . . . {by measuring lateral position of a boundary of the object (G01B 11/022, G01B 11/024, G01B 11/04 take precedence)}
- 11/03 . . . by measuring coordinates of points
- 11/04 . . . specially adapted for measuring length or width of objects while moving
- 11/043 . . . {for measuring length}
- 11/046 . . . {for measuring width}
- 11/06 . . . for measuring thickness, e.g. of sheet material (thickness measurement by thermal means G01B 21/085)
- 11/0608 . . . {Height gauges}
- 11/0616 . . . {of coating}
- 11/0625 . . . . {with measurement of absorption or reflection}
- 11/0633 . . . . . {using one or more discrete wavelengths}
- 11/0641 . . . . . {with measurement of polarization}
- 11/065 . . . . . {using one or more discrete wavelengths}
- 11/0658 . . . . {with measurement of emissivity or reradiation}
- 11/0666 . . . . {using an exciting beam and a detection beam including surface acoustic waves [SAW]}
- 11/0675 . . . . {using interferometry}
- 11/0683 . . . . {measurement during deposition or removal of the layer}
- 11/0691 . . . {of objects while moving (G01B 11/0616 takes precedence)}
- 11/08 . . . for measuring diameters
- 11/10 . . . of objects while moving
- 11/105 . . . {using photoelectric detection means}
- 11/12 . . . internal diameters
- 11/14 . . . for measuring distance or clearance between spaced objects or spaced apertures (G01B 11/26 takes precedence; rangefinders G01C)
- 11/16 . . . for measuring the deformation in a solid, e.g. optical strain gauge
- 11/161 . . . {by interferometric means}
- 11/162 . . . {by speckle- or shearing interferometry}
- 11/164 . . . {by holographic interferometry}
- 11/165 . . . {by means of a grating deformed by the object}

- 11/167 . . {by projecting a pattern on the object}
- 11/168 . . {by means of polarisation}
- 11/18 . . {using photoelastic elements}
- 11/20 . . {using brittle lacquer}
- 11/22 . for measuring depth
- 11/24 . for measuring contours or curvatures
- 11/2408 . . {for measuring roundness}
- 11/2416 . . {of gears (optical projection profile comparators [G01B 9/08](#))}
- 11/2425 . . {of screw-threads}
- 11/2433 . . {for measuring outlines by shadow casting}
- 11/2441 . . {using interferometry}
- 11/245 . . using a plurality of fixed, simultaneously operating transducers ([G01B 11/2408](#) - [G01B 11/2425](#), ) [G01B 11/255](#) take precedence)
- 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](#))
- 11/2504 . . . {Calibration devices}
- 11/2509 . . . {Color coding}
- 11/2513 . . . {with several lines being projected in more than one direction, e.g. grids, patterns}
- 11/2518 . . . {Projection by scanning of the object}
- 11/2522 . . . . {the position of the object changing and being recorded}
- 11/2527 . . . . {with phase change by in-plane movement of the pattern}
- 11/2531 . . . {using several gratings, projected with variable angle of incidence on the object, and one detection device}
- 11/2536 . . . {using several gratings with variable grating pitch, projected on the object with the same angle of incidence}
- 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 (integrators in general [G06G](#))
- 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 {(pressure regulation [G05D 16/00](#))}**
- 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, e.g. of sheet material
- 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 planimeter (integrators in general [G06G](#))
- 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 wave or particle radiation ([G01B 9/00](#), [G01B 11/00](#) take precedence ; by radar technique [G01S](#))**
- 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 subsonic, sonic or ultrasonic vibrations {(by sonar technique [G01S 15/00](#))}**
- 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 in so far as they are not adapted to particular types of measuring means of the preceding groups**
- 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 {(unwinding or rewinding apparatus incorporating length measuring devices [B65H 16/025](#))}
- 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 ([integrators in general G06G](#))
- 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 translatory 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 microsensors
- 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