

CPC**COOPERATIVE PATENT CLASSIFICATION****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](#) to [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](#)) }

NOTE

This subclass covers measuring of position or displacement in terms of linear or angular dimensions.

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.

Attention is drawn to the Notes following the title of class [G01](#) .

Machines operated on similar principles to the hand-held devices specified in this subclass are classified with these devices.

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.

G01B 1/00

Measuring instruments characterised by the selection of material therefor

G01B 3/00

Instruments as specified in the subgroups and characterised by the use of mechanical measuring means (arrangements for measuring particular parameters [G01B 5/00](#) ; devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material [B65H 75/34](#))

G01B 3/002

. { [Details](#) }

G01B 3/004	.. { Scales; Graduations }
G01B 3/006	... { having both coarse and fine graduation }
G01B 3/008	.. { Arrangements for controlling the measuring force }
G01B 3/02	. Rulers or tapes with scales or marks for direct reading
G01B 3/04	.. rigid
G01B 3/06	... folding
G01B 3/08	... extensible
G01B 3/10	.. { flexible, e.g. tape measures }

NOTE

Group [G01B 3/1002](#) takes precedence over groups [G01B 3/1005](#) to [G01B 3/10 Z](#)

G01B 3/1002	... { Tape measures without casings }
G01B 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 }
G01B 2003/1007	.... Locking members
G01B 2003/101	..... acting on the drum
G01B 2003/1012	..... engaging the tape in a direction parallel to the tape itself
G01B 2003/1015	..... engaging the tape in a direction transversal to the tape itself
G01B 2003/1017	..... acting on the whole coil
G01B 2003/102	.... Damping means
G01B 2003/1023	.... Winding mechanisms
G01B 2003/1025	..... Hand operated, e.g. crank-handles
G01B 2003/1028	..... Electrical motors
G01B 2003/103	..... Springs
G01B 2003/1033	.... Means for activating locking, braking or releasing of the tape, e.g. buttons
G01B 2003/1035	..... by pivotal operation
G01B 2003/1038	..... by translatory motion operation
G01B 3/1041	... { Casings, i.e. structures to contain the tape }
G01B 2003/1043	.... internal structure and constructional details
G01B 2003/1046	.... external shape ; elements for generating an offset
G01B 2003/1048	.... mounting elements integral to the casing for fixing to external structures or for holding, e.g. handles
G01B 2003/1051	.... plurality of tapes within the same casing
G01B 2003/1053	.... tape exit slot, e.g. shape or exit direction
G01B 3/1056	... { End-hooks; Attachment of end-hooks to the tape; Distal and proximal ends of the tape }
G01B 2003/1058	... Manufacturing or assembling methods
G01B 3/1061	... { Means for reading or displaying length measurement }
G01B 2003/1064	.... Windows, e.g. lens, glass or cross-hairs
G01B 2003/1066	.... Index sliding on tape

G01B 2003/1069	....	Electronic or mechanical displaying means
G01B 3/1071	...	{ External support or attachment means, i.e. not provided in the tape measure itself }
G01B 2003/1074	....	for the casing
G01B 2003/1076	....	for the end-hook
G01B 2003/1079	....	for the tape itself
G01B 3/1082	...	{ Details of the tape per se, e.g. scale structure, indicia on scale, particular material for the tape }
G01B 3/1084	...	{ Particular applications of tape measures or special adaptations thereto }
G01B 2003/1087	....	for illuminating
G01B 2003/1089	....	for drawing, marking, cutting
G01B 2003/1092	....	measuring instruments cooperating with the tape measure, e.g. bubble-type level
G01B 2003/1094	....	for calculating, recording, indicating ; aide memoire
G01B 2003/1097	....	Tape measures with an adhesive surface
G01B 3/11	.	Chains for measuring length
G01B 3/12	.	Measuring wheels
G01B 3/14	.	Templates for checking contours { (templates for mounting doors or windows E04F 21/00 B) }
G01B 3/16	.	Compasses, i.e. with a pair of pivoted arms
G01B 3/163	..	{ without measuring scale }
G01B 3/166	..	{ provided with a measuring scale }
G01B 3/18	.	Micrometers
G01B 3/20	.	Slide gauges
G01B 3/205	..	{ provided with a counter for digital indication of the measured dimension }
G01B 3/22	.	Feeler-pin gauges, e.g. dial gauges (for determining profiles G01B 5/20)
G01B 3/24	..	with open yoke, i.e. calipers
G01B 3/26	..	Plug gauges
G01B 3/28	..	Depth gauges
G01B 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
G01B 3/303	..	{ pre-adjustable, e.g. by means of micrometerscrew }
G01B 3/306	...	{ with inclined slide plane }
G01B 3/32	..	Holders therefor
G01B 3/34	.	Ring or other apertured gauges, e.g. "go/no-go" gauge
G01B 3/36	..	for external screw-threads
G01B 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

- G01B 3/40 . . for external screw-threads
- G01B 3/42 . . of limit-gauge type, i.e. "go/no-go" ([G01B 3/40](#) takes precedence)
- G01B 3/44 . . . preadjustable for wear or tolerance

- G01B 3/46 . Plug gauges for internal dimensions with engaging surfaces which are at a fixed distance, although they may be preadjustable
- G01B 3/48 . . for internal screw-threads
- G01B 3/50 . . of limit-gauge type, i.e. "go/no-go" ([G01B 3/48](#) takes precedence)
- G01B 3/52 . . . preadjustable for wear or tolerance

- G01B 3/56 . Gauges for measuring angles or tapers, e.g. conical calipers
- G01B 3/563 . . { [Protractors](#) (for use in geodesy [G01C 1/00](#) ; protractor heads for drawing machines [B43L 13/08](#)) }
- G01B 3/566 . . { [Squares](#) }

- G01B 5/00** **Measuring arrangements characterised by the use of mechanical means (instruments of the types covered by group [G01B 3/00](#) per se [G01B 3/00](#))**

- G01B 5/0002 . { [Arrangements for supporting, fixing or guiding the measuring instrument or the object to be measured](#) }
- G01B 5/0004 . . { [Supports](#) (in general [F16M](#) , [116A2C](#); [G01B 5/025](#) takes precedence) }
- G01B 5/0007 . . { [Surface plates](#) }
- G01B 5/0009 . . { [Guiding surfaces; Arrangements compensating for non-linearity there-of](#) }

- G01B 5/0011 . { [Arrangements for eliminating or compensation of measuring errors due to temperature or weight](#) }
- G01B 5/0014 . . { [due to temperature](#) (on machine tools [B23Q 11/00B](#)) }
- G01B 5/0016 . . { [due to weight](#) (on machine tools [B23Q 11/001](#)) }

- G01B 5/0018 . { [for measuring key-ways](#) }

- G01B 5/0021 . { [for measuring the volumetric dimension of an object](#) }

- G01B 5/0023 . { [Measuring of sport goods, e.g. bowling accessories, golfclubs, game balls](#) }

- G01B 5/0025 . { [Measuring of vehicle parts](#) ([G01B 5/003](#) takes precedence) }
- G01B 5/0028 . . { [Brakes, brakeshoes, clutches](#) }

- G01B 5/003 . { [Measuring of motor parts](#) }
- G01B 5/0032 . . { [Valves, actuating devices for valves](#) }

- G01B 5/0035 . { [Measuring of dimensions of trees](#) }

- G01B 5/0037 . { [Measuring of dimensions of welds](#) }

- G01B 5/004 . for measuring coordinates of points
- G01B 5/008 . . using coordinate measuring machines
- G01B 5/012 . . . Contact-making feeler heads therefor

- G01B 5/016 Constructional details of contacts
- G01B 5/02 . for measuring length, width or thickness ([G01B 5/004](#) , [G01B 5/08](#) take precedence)
- G01B 5/025 . . { [Measuring of circumference; Measuring length of ring-shaped articles \(\[G01B 5/0035\]\(#\) takes precedence \)](#) }
- G01B 5/04 . . specially adapted for measuring length or width of objects while moving
- G01B 5/043 . . . { [for measuring length](#) }
- G01B 5/046 . . . { [for measuring width](#) }
- G01B 5/06 . . for measuring thickness
- G01B 5/061 . . . { [height gauges](#) }
- G01B 5/063 { [provided with a slide which may be moved along a vertical support by means of a micrometer screw](#) }
- G01B 5/065 { [provided with a slide which may be fixed along its vertical support in discrete calibrated position](#) }
- G01B 5/066 . . . { [of coating](#) }
- G01B 5/068 . . . { [of objects while moving \(\[G01B 5/066\]\(#\) takes precedence \)](#) }
- G01B 5/08 . for measuring diameters { ([G01B 5/0035](#) takes precedence; measuring radius of curvature [G01B 5/213](#)) }
- G01B 5/10 . . of objects while moving
- G01B 5/12 . . internal diameters
- G01B 5/14 . for measuring distance or clearance between spaced objects or spaced apertures ([G01B 5/24](#) takes precedence)
- G01B 5/143 . . { [between holes on a workpiece](#) }
- G01B 5/146 . . { [measuring play on bearings](#) }
- G01B 5/16 . . between a succession of regularly spaced objects or regularly spaced apertures
- G01B 5/163 . . . { [of screw-threads](#) }
- G01B 5/166 . . . { [of gear teeth](#) }
- G01B 5/18 . for measuring depth
- G01B 5/20 . for measuring contours or curvatures
- G01B 5/201 . . { [for measuring roundness](#) }
- G01B 5/202 . . { [of gears](#) }
- G01B 5/204 . . { [of screw-threads](#) }
- G01B 5/205 . . { [of turbine blades or propellers](#) }
- G01B 5/207 . . using a plurality of fixed, simultaneously operating transducers ([G01B 5/213](#) to [G01B 5/22](#) take precedence)
- G01B 5/213 . . for measuring radius of curvature
- G01B 5/22 . . Spherometers
- G01B 5/24 . for measuring angles or tapers ; for testing alignment of axes
- G01B 5/241 . . { [for measuring conicity](#) }
- G01B 5/242 . . { [Sine bars; Sine plates](#) }

- G01B 5/243 . . { for measuring chamfer (see [G01B 3/56](#)) }
- G01B 5/245 . . for testing perpendicularity
- G01B 5/25 . . for testing the alignment of axes
- G01B 5/252 . . . for measuring eccentricity, i.e. lateral shift between two parallel axes
- G01B 5/255 . . for testing wheel alignment

- G01B 5/26 . for measuring areas, e.g. planimeter (integrators in general [G06G](#))

- G01B 5/28 . for measuring roughness or irregularity of surfaces
- G01B 5/285 . . { for controlling evenness }

- G01B 5/30 . for measuring the deformation in a solid, e.g. mechanical strain gauge

- G01B 7/00 Measuring arrangements characterised by the use of electric or magnetic means**

- G01B 7/001 . { Constructional details of gauge heads ([G01B 7/012](#) takes precedence) }
- G01B 7/002 . { Constructional details of contacts for gauges actuating one or more contacts ([G01B 7/016](#) takes precedence) }
- G01B 7/003 . { for measuring position, not involving coordinate determination (coordinate measuring [G01B 7/004](#)) }

- G01B 7/004 . for measuring coordinates of points
- G01B 7/008 . . using coordinate measuring machines
- G01B 7/012 . . . Contact-making feeler heads therefor
- G01B 7/016 Constructional details of contacts

- G01B 7/02 . for measuring length, width or thickness ([G01B 7/004](#) , [G01B 7/12](#) take precedence)
- G01B 7/023 . . { for measuring distance between sensor and object ([G01B 7/082](#) and [G01B 7/102](#) take precedence) }
- G01B 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](#)) }
- G01B 7/04 . . specially adapted for measuring length or width of objects while moving
- G01B 7/042 . . . { for measuring length }
- G01B 7/044 { using capacitive means }
- G01B 7/046 { using magnetic means }
- G01B 7/048 . . . { for measuring width }
- G01B 7/06 . . for measuring thickness { (measuring during the manufacture of coatings [C23C 14/54](#)) }
- G01B 7/063 . . . { using piezo-electric resonators }
- G01B 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](#)) }

- G01B 7/08 . . . using capacitive means
- G01B 7/082 { Height gauges }

- G01B 7/085 { for measuring thickness of coating }
- G01B 7/087 { for measuring of objects while moving ([G01B 7/085](#) takes precedence) }
- G01B 7/10 . . . using magnetic means, e.g. by measuring change of reluctance
- G01B 7/102 { Height gauges }
- G01B 7/105 { for measuring thickness of coating }
- G01B 7/107 { for measuring objects while moving ([G01B 7/105](#) takes precedence) }
- G01B 7/12 . . for measuring diameters
- G01B 7/125 . . { of objects while moving }
- G01B 7/13 . . Internal diameters
- G01B 7/14 . . for measuring distance or clearance between spaced objects or spaced apertures ([G01B 7/30](#) takes precedence)
- G01B 7/142 . . { between holes on a workpiece }
- G01B 7/144 . . { Measuring play on bearings }
- G01B 7/146 . . { Measuring on gear teeth }
- G01B 7/148 . . { Measuring on screw threads }
- G01B 7/15 . . being regularly spaced
- G01B 7/16 . . for measuring deformation in a solid, e.g. by resistance strain gauge
- G01B 7/18 . . using change in resistance
- G01B 7/20 . . . formed by printed-circuit technique
- G01B 7/22 . . using change in capacitance
- G01B 7/24 . . using change in magnetic properties
- G01B 7/26 . . for measuring depth
- G01B 7/28 . . for measuring contours or curvatures
- G01B 7/281 . . { for measuring contour or curvature along an axis, e.g. axial curvature of a pipeline or along a series of feeder rollers }
- G01B 7/282 . . { for measuring roundness }
- G01B 7/283 . . { of gears }
- G01B 7/284 . . { of screw-threads }
- G01B 7/285 . . { of propellers or turbine blades }
- G01B 7/286 . . { Spherometers }
- G01B 7/287 . . using a plurality of fixed, simultaneously operating transducers ([G01B 7/293](#) takes precedence)
- G01B 7/293 . . for measuring radius of curvature
- G01B 7/30 . . for measuring angles or tapers ; for testing the alignment of axes
- G01B 7/305 . . for testing perpendicularity
- G01B 7/31 . . for testing the alignment of axes
- G01B 7/312 . . . for measuring eccentricity, i.e. lateral shift between two parallel axes
- G01B 7/315 . . for testing wheel alignment
- G01B 7/32 . . for measuring areas ([integrators in general G06G](#))

- G01B 7/34 . for measuring roughness or irregularity of surfaces
- G01B 7/345 .. { for measuring evenness }

G01B 9/00 **Instruments as specified in the subgroups and characterised by the use of optical measuring means (arrangements for measuring particular parameters [G01B 11/00](#))**

- G01B 9/02 . Interferometers { for determining dimensional properties of, or relations between, measurement objects }

WARNING

The subgroups [G01B 9/02001](#) - [G01B 9/02097](#) are not complete pending completion of a reorganization, provisionally see [G01B 9/02](#)

- G01B 9/02001 .. { characterised by manipulating or generating specific radiation properties }
- G01B 9/02002 ... { Frequency variation }
- G01B 9/02003 { by using beat frequencies generated by mixing of two or more frequencies }
- G01B 9/02004 { by using a continuous frequency sweep or scan }
- G01B 9/02005 { by using discrete frequency stepping or switching }
- G01B 9/02007 ... { Two or more frequencies or sources used for interferometric measurement (using only beat [G01B 9/02003](#)) }
- G01B 9/02008 { by using a frequency comb }
- G01B 9/02009 { by using two or more low coherence lengths using different or varying spectral width }
- G01B 9/0201 ... { using temporal phase variation }
- G01B 9/02011 ... { using temporal polarization variation }
- G01B 9/02012 ... { using temporal intensity variation }
- G01B 9/02014 { by using pulsed light }
- G01B 9/02015 .. { characterised by a particular beam path configuration }
- G01B 9/02016 ... { contacting two or more objects }
- G01B 9/02017 ... { contacting one object several times }
- G01B 9/02018 { Multiple-pass interferometer, e.g. double pass }
- G01B 9/02019 { contacting different points on same face of object }
- G01B 9/02021 { contacting different faces of object, e.g. opposite faces }
- G01B 9/02022 ... { contacting one object by grazing incidence }
- G01B 9/02023 ... { Indirect probing of object, e.g. via influence on cavity or fibre }
- G01B 9/02024 ... { Measuring in transmission, i.e. light traverses the object }
- G01B 9/02025 ... { Interference between three or more discrete surfaces }
- G01B 9/02027 ... { Two or more interferometric channels or interferometers }
- G01B 9/02028 { Two or more reference or object arms in one interferometer }
- G01B 9/02029 ... { Combination with non-interferometric systems, i.e. for measuring the object }
- G01B 9/0203 { With imaging systems }
- G01B 9/02031 { With non-optical systems, e.g. tactile }
- G01B 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) }
G01B 9/02034	..	{ characterised by particularly shaped beams or wavefronts }
G01B 9/02035	...	{ Shaping the focal point, e.g. elongated focus }
G01B 9/02036	....	{ by using chromatic effects, e.g. a wavelength dependent focal point }
G01B 9/02037	....	{ by generating a transverse line focus }
G01B 9/02038	...	{ Shaping the wavefront, e.g. generating a spherical wavefront }
G01B 9/02039	....	{ by matching the wavefront with a particular object surface shape }
G01B 9/02041	..	{ characterised by particular imaging or detection techniques }
G01B 9/02042	...	{ Confocal imaging }
G01B 9/02043	...	{ Imaging of the Fourier or pupil or back focal plane, i.e. angle resolved imaging }
G01B 9/02044	...	{ Imaging in the frequency domain, e.g. by using a spectrometer }
G01B 9/02045	...	{ using the Doppler effect }
G01B 9/02047	...	{ using digital holographic imaging, e.g. lensless phase imaging without hologram in the reference path }
G01B 9/02048	...	{ Rough and fine measurement }
G01B 9/02049	..	{ characterised by particular mechanical design details }
G01B 9/0205	...	{ of probe head }
G01B 9/02051	...	{ Integrated design, e.g. on-chip or monolithic }
G01B 9/02052	...	{ Protecting, e.g. shock absorbing, arrangements }
G01B 9/02054	...	{ Hand held }
G01B 9/02055	..	{ characterised by error reduction techniques }
G01B 9/02056	...	{ Passive error reduction, i.e. not varying during measurement, e.g. by constructional details of optics }
G01B 9/02057	....	{ by using common path configuration, i.e. reference and object path almost entirely overlapping }
G01B 9/02058	....	{ by particular optical compensation or alignment elements, e.g. dispersion compensation }
G01B 9/02059	....	{ Reducing effect of parasitic reflections, e.g. cyclic errors }
G01B 9/02061	....	{ Reducing or preventing effect of tilt or misalignment, e.g. of object or reference mirror }
G01B 9/02062	...	{ Active error reduction, i.e. varying with time }
G01B 9/02063	....	{ by particular alignment of focus position, e.g. dynamic focussing in optical coherence tomography }
G01B 9/02064	....	{ by particular adjustment of coherence gate, i.e. adjusting position of zero path difference in low coherence interferometry }
G01B 9/02065	.....	{ using a second interferometer before or after measuring interferometer }
G01B 9/02067	....	{ by electronic control systems, i.e. using feedback acting on optics or light }
G01B 9/02068	.....	{ Auto-alignment of optical elements }
G01B 9/02069	.....	{ Synchronization of light source or manipulator and detector }
G01B 9/0207	...	{ Error reduction by correction of the measurement signal based on independently determined error sources, e.g. using a reference interferometer }
G01B 9/02071	....	{ by measuring path difference independently from interferometer }

- G01B 9/02072 { by calibration or testing of interferometer }
- G01B 9/02074 { of the detector }
- G01B 9/02075 . . . { of particular errors }
- G01B 9/02076 { Caused by motion }
- G01B 9/02077 { of the object }
- G01B 9/02078 { Caused by ambiguity }
- G01B 9/02079 { Quadrature detection, i.e. detecting relatively phase-shifted signals }
- G01B 9/02081 { simultaneous quadrature detection, e.g. by spatial phase shifting }
- G01B 9/02082 { Caused by speckles }
- G01B 9/02083 . . { characterised by particular signal processing and presentation }
- G01B 9/02084 . . . { Processing in the Fourier or frequency domain when not imaged in the frequency domain }
- G01B 9/02085 . . . { Combining two or more images of different regions }
- G01B 9/02087 . . . { Combining two or more images of the same region }
- G01B 9/02088 . . . { Matching signals with a database }
- G01B 9/02089 . . . { Displaying the signal, e.g. for user interaction }
- G01B 9/0209 . . { Non-tomographic low coherence interferometers, e.g. low coherence interferometry, scanning white light interferometry, optical frequency domain interferometry or reflectometry }
- G01B 9/02091 . . { Tomographic low coherence interferometers, e.g. optical coherence tomography }
- G01B 9/02092 . . { Self-mixing interferometers, i.e. feedback of light from object into laser cavity }
- G01B 9/02094 . . { Speckle interferometers, i.e. for detecting changes in speckle pattern }
- G01B 9/02095 . . . { detecting deformation from original shape }
- G01B 9/02096 . . . { detecting a contour or curvature }
- G01B 9/02097 . . { Self-interferometers, i.e. the object beam interfering with a shifted version of itself }
- G01B 9/02098 . . . { shearing interferometers }
- G01B 9/021 . . using holographic techniques
- G01B 9/023 . . . for contour producing ([G01B 9/025](#) to [G01B 9/029](#) take precedence)
- G01B 9/025 . . . Double exposure technique
- G01B 9/027 . . . in real time
- G01B 9/029 . . . by time averaging
- G01B 9/04 . Measuring microscopes ([microscopes in general G02B 21/00](#))
- G01B 9/06 . Measuring telescopes ([telescopes in general G02B 23/00](#))
- G01B 9/08 . Optical projection comparators
- G01B 9/10 . Goniometers for measuring angles between surfaces
- G01B 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](#))
- G01B 11/002 . { for measuring two or more coordinates }

- G01B 11/005 .. { coordinate measuring machines }
- G01B 11/007 ... { feeler heads therefor }

- G01B 11/02 . for measuring length, width or thickness ([G01B 11/08](#) takes precedence)
- G01B 11/022 .. { by means of tv-camera scanning }
- G01B 11/024 .. { by means of diode-array scanning }
- G01B 11/026 .. { by measuring distance between sensor and object ([G01B 11/0608](#) takes precedence) }
- G01B 11/028 .. { by measuring lateral position of a boundary of the object ([G01B 11/022](#) , [G01B 11/024](#) , [G01B 11/04](#) take precedence) }
- G01B 11/03 .. by measuring coordinates of points
- G01B 11/04 .. specially adapted for measuring length or width of objects while moving
- G01B 11/043 ... { for measuring length }
- G01B 11/046 ... { for measuring width }
- G01B 11/06 .. for measuring thickness, e.g. of sheet material ([thickness measurement by thermal means G01B 21/085](#))

- G01B 11/0608 ... { Height gauges }
- G01B 11/0616 ... { of coating }
- G01B 11/0625 { with measurement of absorption or reflection }
- G01B 11/0633 { using one or more discrete wavelengths }
- G01B 11/0641 { with measurement of polarization }
- G01B 11/065 { using one or more discrete wavelengths }
- G01B 11/0658 { with measurement of emissivity or reradiation }
- G01B 11/0666 { using an exciting beam and a detection beam including surface acoustic waves (SAW) }
- G01B 11/0675 { using interferometry }
- G01B 11/0683 { measurement during deposition or removal of the layer }
- G01B 11/0691 ... { of objects while moving ([G01B 11/0616](#) takes precedence) }

- G01B 11/08 . for measuring diameters
- G01B 11/10 .. of objects while moving
- G01B 11/105 ... { using photoelectric detection means }
- G01B 11/12 .. internal diameters

- G01B 11/14 . for measuring distance or clearance between spaced objects or spaced apertures ([G01B 11/26](#) takes precedence; [rangefinders G01C](#))

- G01B 11/16 . for measuring the deformation in a solid, e.g. optical strain gauge
- G01B 11/161 .. { by interferometric means }
- G01B 11/162 ... { by speckle- or shearing interferometry }
- G01B 11/164 ... { by holographic interferometry }
- G01B 11/165 .. { by means of a grating deformed by the object }
- G01B 11/167 .. { by projecting a pattern on the object }
- G01B 11/168 .. { by means of polarisation }
- G01B 11/18 .. using photoelastic elements

- G01B 11/20 . . using brittle lacquer
- G01B 11/22 . for measuring depth
- G01B 11/24 . for measuring contours or curvatures
- G01B 11/2408 . . { for measuring roundness }
- G01B 11/2416 . . { of gears (optical projection profile comparators [G01B 9/08](#)) }
- G01B 11/2425 . . { of screw-threads }
- G01B 11/2433 . . { for measuring outlines by shadow casting }
- G01B 11/2441 . . { using interferometry }
- G01B 11/245 . . using a plurality of fixed, simultaneously operating transducers ({ [G01B 11/2408](#) to [G01B 11/2425](#) , } [G01B 11/255](#) take precedence)
- G01B 11/25 . . by projecting a pattern, e.g. { one or more lines, } moirè fringes on the object ([G01B 11/255](#) takes precedence; image analysis for depth or shape recovery [G06T 7/0051](#))
- G01B 11/2504 . . . { Calibration devices }
- G01B 11/2509 . . . { Color coding }
- G01B 11/2513 . . . { with several lines being projected in more than one direction, e.g. grids, patterns }
- G01B 11/2518 . . . { Projection by scanning of the object }
- G01B 11/2522 { the position of the object changing and being recorded }
- G01B 11/2527 { with phase change by in-plane movement of the pattern }
- G01B 11/2531 . . . { using several gratings, projected with variable angle of incidence on the object, and one detection device }
- G01B 11/2536 . . . { using several gratings with variable grating pitch, projected on the object with the same angle of incidence }
- G01B 11/254 . . . { Projection of a pattern, viewing through a pattern, e.g. moirè }
- G01B 11/2545 . . . { with one projection direction and several detection directions, e.g. stereo }
- G01B 11/255 . . for measuring radius of curvature { (measuring diameter [G01B 11/08](#)) }
- G01B 11/26 . for measuring angles or tapers ; for testing the alignment of axes
- G01B 11/27 . . for testing the alignment of axes { (means for centering or aligning a light guide within a ferrule [G02B 6/3834](#)) }
- G01B 11/272 . . . { using photoelectric detection means }
- G01B 11/275 . . for testing wheel alignment
- G01B 11/2755 . . . { using photoelectric detection means }
- G01B 11/28 . for measuring areas (integrators in general [G06G](#))
- G01B 11/285 . . { using photoelectric detection means }
- G01B 11/30 . for measuring roughness or irregularity of surfaces
- G01B 11/303 . . { using photoelectric detection means }
- G01B 11/306 . . { for measuring evenness }
- G01B 13/00** **Measuring arrangements characterised by the use of fluids { (pressure regulation [G05D 16/00](#)) }**

- G01B 13/02 . for measuring length, width or thickness ([G01B 13/08 takes precedence](#))
- G01B 13/03 . . by measuring coordinates of points
- G01B 13/04 . . specially adapted for measuring length or width of objects while moving
- G01B 13/06 . . for measuring thickness, e.g. of sheet material
- G01B 13/065 . . . { [Height gauges](#) }
- G01B 13/08 . for measuring diameters
- G01B 13/10 . . internal diameters
- G01B 13/12 . for measuring distance or clearance between spaced objects or spaced apertures ([G01B 13/18 takes precedence](#))
- G01B 13/14 . for measuring depth
- G01B 13/16 . for measuring contours or curvatures
- G01B 13/18 . for measuring angles or tapers ; for testing the alignment of axes
- G01B 13/19 . . for testing the alignment of axes
- G01B 13/195 . . for testing wheel alignment
- G01B 13/20 . for measuring areas, e.g. pneumatic planimeter ([integrators in general G06G](#))
- G01B 13/22 . for measuring roughness or irregularity of surfaces
- G01B 13/24 . for measuring the deformation in a solid
- G01B 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](#) })**
- G01B 15/02 . for measuring thickness
- G01B 15/025 . . { [by measuring absorption](#) }
- G01B 15/04 . for measuring contours or curvatures
- G01B 15/045 . . { [by measuring absorption](#) }
- G01B 15/06 . for measuring the deformation in a solid
- G01B 15/08 . for measuring roughness or irregularity of surfaces
- G01B 17/00** **Measuring arrangements characterised by the use of subsonic, sonic or ultrasonic vibrations { ([by sonar technique G01S 15/00](#)) }**
- G01B 17/02 . for measuring thickness
- G01B 17/025 . . { [for measuring thickness of coating](#) }
- G01B 17/04 . for measuring the deformation in a solid, e.g. by vibrating string
- G01B 17/06 . for measuring contours or curvatures

G01B 17/08 . for measuring roughness or irregularity of surfaces

G01B 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.

G01B 21/02 . for measuring length, width, or thickness ([G01B 21/10](#) takes precedence)

G01B 21/04 . . by measuring coordinates of points

G01B 21/042 . . . { Calibration or calibration artifacts ([G01B 3/30](#) , [G01B 9/02072](#) take precedence) }

G01B 21/045 . . . { Correction of measurements ([G01B 9/02055](#) takes precedence) }

G01B 21/047 . . . { Accessories, e.g. for positioning, for tool-setting, for measuring probes }

G01B 21/06 . . specially adapted for measuring length or width of objects while moving { unwinding or rewinding apparatus incorporating length measuring devices [B65H 16/025](#) , [B65H 18/02C](#) }

G01B 21/065 . . . { for stretchable materials }

G01B 21/08 . . for measuring thickness

G01B 21/085 . . . { using thermal means }

G01B 21/10 . for measuring diameters

G01B 21/12 . . of objects while moving

G01B 21/14 . . internal diameters { (of boreholes or wells [E21B 47/08](#)) }

G01B 21/16 . for measuring distance of clearance between spaced objects

G01B 21/18 . for measuring depth

G01B 21/20 . for measuring contours or curvatures, e.g. determining profile

G01B 21/22 . for measuring angles or tapers ; for testing the alignment of axes

G01B 21/24 . . for testing alignment of axes

G01B 21/26 . . for testing wheel alignment

G01B 21/28 . for measuring areas (integrators in general [G06G](#))

G01B 21/30 . for measuring roughness or irregularity of surfaces

G01B 21/32 . for measuring the deformation in a solid

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

G01B 2210/10 . Wheel alignment

- G01B 2210/12 . . Method or fixture for calibrating the wheel aligner
- G01B 2210/14 . . One or more cameras or other optical devices capable of acquiring a two-dimensional image
- G01B 2210/143 . . . One or more cameras on each side of a vehicle in the main embodiment
- G01B 2210/146 . . . Two or more cameras imaging the same area
- G01B 2210/16 . . Active or passive device attached to the chassis of a vehicle
- G01B 2210/18 . . Specially developed for using with motorbikes or other two-wheeled vehicles
- G01B 2210/20 . . Vehicle in a state of translatory motion
- G01B 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
- G01B 2210/24 . . Specially developed for using with trucks or other heavy-duty vehicles
- G01B 2210/26 . . Algorithms, instructions, databases, computerized methods and graphical user interfaces employed by a user in conjunction with the wheel aligner
- G01B 2210/28 . . Beam projector and related sensors, camera, inclinometer or other active sensing or projecting device
- G01B 2210/283 . . . Beam projectors and related sensors
- G01B 2210/286 Projecting a light pattern on the wheel or vehicle body
- G01B 2210/30 . . Reference markings, reflector, scale or other passive device
- G01B 2210/303 . . . fixed to the ground or to the measuring station
- G01B 2210/306 . . . Mirror, prism or other reflector
- G01B 2210/40 . Caliper-like sensors
- G01B 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
- G01B 2210/44 . . with detectors on both sides of the object to be measured
- G01B 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
- G01B 2210/48 . . for measurement of a wafer
- G01B 2210/50 . Using chromatic effects to achieve wavelength-dependent depth resolution
- G01B 2210/52 . Combining or merging partially overlapping images to an overall image
- G01B 2210/54 . Revolving an optical measuring instrument around a body
- G01B 2210/56 . Measuring geometric parameters of semiconductor structures, e.g. profile, critical dimensions or trench depth
- G01B 2210/58 . Wireless transmission of information between a sensor or probe and a control or evaluation unit
- G01B 2210/60 . Unique sensor identification
- G01B 2210/62 . Support for workpiece air film or bearing with positive or negative pressure
- G01B 2210/64 . Interconnection or interfacing through or under capping or via rear of substrate in microsensors
- G01B 2210/66 . Rock or ground anchors having deformation measuring means

G01B 2290/00 **Aspects of interferometers not specifically covered by any group under [G01B 9/02](#)**

- G01B 2290/10 . Astronomic interferometers
- G01B 2290/15 . Cat eye, i.e. reflection always parallel to incoming beam
- G01B 2290/20 . Dispersive element for generating dispersion
- G01B 2290/25 . Fabry-Perot in interferometer, e.g. etalon, cavity
- G01B 2290/30 . Grating as beam-splitter
- G01B 2290/35 . Mechanical variable delay line
- G01B 2290/40 . Non-mechanical variable delay line
- G01B 2290/45 . Multiple detectors for detecting interferometer signals
- G01B 2290/50 . Pupil plane manipulation, e.g. filtering light of certain reflection angles
- G01B 2290/55 . Quantum effects
- G01B 2290/60 . Reference interferometer, i.e. additional interferometer not interacting with object
- G01B 2290/65 . Spatial scanning object beam
- G01B 2290/70 . Using polarization in the interferometer