

## G01M

### TESTING STATIC OR DYNAMIC BALANCE OF MACHINES OR STRUCTURES; TESTING OF STRUCTURES OR APPARATUS, NOT OTHERWISE PROVIDED FOR

#### Definition statement

*This place covers:*

Testing characterised by the objects investigated:

- Machines or machine parts – see definitions for [G01M 1/00](#), [G01M 9/00](#), [G01M 10/00](#), [G01M 13/00](#), [G01M 15/00](#), [G01M 17/00](#)
- Structures – see definitions for [G01M 1/00](#), [G01M 3/00](#), [G01M 5/00](#), [G01M 7/00](#)
- Apparatus not provided elsewhere – see definitions for [G01M 11/00](#), [G01M 99/00](#)

Testing characterised by the properties investigated:

- Balance – see definition for [G01M 1/00](#)
- Fluid tightness – see definition for [G01M 3/00](#)
- Elasticity, deflection – see definition for [G01M 5/00](#)
- Vibration resistance – see definition for [G01M 7/00](#)
- Aerodynamic properties – see definition for [G01M 9/00](#)
- Hydrodynamic properties – see definition for [G01M 10/00](#)
- Optical properties – see definition for [G01M 11/00](#)

#### Relationships with other classification places

Subclass [G01N](#) covers investigating, i.e. testing or determining, the properties of materials, as opposed to testing or determining the properties of structures or apparatus, machine parts, which is covered by subclass [G01M](#).

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Devices for testing the performance of portable percussive tools with fluid-pressure drive	<a href="#">B25D 9/005</a>
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#### Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

Calibrating	means ascertaining the quality of a measuring or testing device, or checking, adjusting graduations of measuring or testing device.
Monitoring	means maintain a continuous or periodical watch (human or instrumental) on, to enable action to be taken or initiated, or a signal to be given, if undesired conditions occur.
Investigating	means testing or determining.
Testing	means determination of the presence, quality, or genuineness of object to be tested.

## G01M 1/00

### Testing static or dynamic balance of machines or structures

#### Definition statement

*This place covers:*

Methods and apparatus for:

- determining and compensating static or dynamic imbalance of machines or structures;
- determining the moment of inertia of machines or structures;
- static balancing of machines or structures;
- determining position of centre of gravity of machines or structures;
- combined machines or devices for both determining and correcting imbalance of machines or structures.

#### Relationships with other classification places

Subclass [G01H](#) covers the combination of generation and measurement of mechanical and other vibrations while subclass [G01M](#) covers determining imbalance by oscillating or rotating the body to be tested.

Subclass [G01R](#) covers instruments for measuring electrical variables, which can be used for balancing machines or devices but not specially adapted for this purpose.

Subclass [H04R](#) covers electromechanical transducers producing acoustic waves or variations of electric variables (current or voltage) while subclass [G01M](#) covers determining imbalance by converting vibrations due to imbalance into electric variables.

The testing of vehicles is covered in group [G01M 17/00](#), but nontrivial methodological details of such testing can justify also assigning groups [G01M 1/02](#) - [G01M 1/14](#) and [G01M 1/30](#).

#### References

##### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Balancing rotary bowls of centrifuges	<a href="#">B04B 9/14</a>
Equipment to decrease pitch, roll or like unwanted vessel movements; Apparatus for indicating vessel attitude	<a href="#">B63B 39/00</a>
Determining vessel properties with respect to stability or balance	<a href="#">B63B 79/00</a>
Aircraft stabilisation not otherwise provided for	<a href="#">B64C 17/00</a>
Preventing or reducing imbalance or noise	<a href="#">D06F 33/48</a>
In assembly, mounting or commissioning of wind motors, balancing static or dynamic imbalances	<a href="#">F03D 13/35</a>
Centring the rotor within the stator; Balancing the rotor	<a href="#">H02K 15/16</a>

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Means for holding wheels or parts thereof	<a href="#">B60B 30/00</a>
Balancing machines or engines for liquids	<a href="#">F03B 11/04</a>
Balancing non-positive-displacement pumps	<a href="#">F04D 29/66</a>

Counterweights; Attaching or mounting same	<a href="#">F16F 15/28</a>
Correcting- or balancing-weights or equivalents means for balancing rotating bodies, e.g. vehicle wheels	<a href="#">F16F 15/32</a>
Measuring vibrations in general	<a href="#">G01H</a>
Measuring electrical variables in general	<a href="#">G01R</a>
Control of mechanical oscillations	<a href="#">G05D 19/00</a>
Microphones or like acoustic electromechanical transducers	<a href="#">H04R</a>

## G01M 1/04

### Adaptation of bearing support assemblies for receiving the body to be tested

#### References

##### Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Test of wheels	<a href="#">G01M 17/013</a>
Uniformity test of tyre	<a href="#">G01M 17/02</a>
Tyre chucks for testing purposes	<a href="#">G01M 17/021</a>
Uniformity test of tyre and surface correction	<a href="#">G01M 17/024</a>

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Means for holding wheels or parts thereof	<a href="#">B60B 30/00</a>
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## G01M 1/12

### Static balancing; Determining position of centre of gravity (by determining imbalance [G01M 1/14](#))

#### References

##### Limiting references

This place does not cover:

Determining imbalance by dynamic methods	<a href="#">G01M 1/14</a>
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##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Levelling, stabilizing of vehicles transporting loads	<a href="#">B60P 1/045</a>
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**G01M 1/14****Determining imbalance ([G01M 1/30](#) takes precedence)****References*****Application-oriented references***

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Arrangements for detecting or measuring imbalance in washing machines, washer-dryers or laundry dryers	<a href="#">D06F 34/16</a>
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**G01M 1/22****and converting vibrations due to imbalance into electric variables****References*****Application-oriented references***

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Measuring vibration in general	<a href="#">G01H</a>
Vibration transducers per se	<a href="#">H04R</a>

**G01M 1/30****Compensating imbalance****References*****Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Counterweights	<a href="#">F16F 15/28</a>
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**G01M 1/32****by adding material to the body to be tested, e.g. by correcting-weights****References*****Informative references***

*Attention is drawn to the following places, which may be of interest for search:*

Correcting-weights per se	<a href="#">F16F 15/32</a>
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## G01M 1/34

**by removing material from the body to be tested, e.g. from the tread of tyres**

### Definition statement

*This place covers:*

Devices for compensating imbalance by removing by grinding or drilling.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Uniformity test of tyre and surface correction	<a href="#">G01M 17/024</a>
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## G01M 1/36

**by adjusting position of masses built-in the body to be tested**

### Definition statement

*This place covers:*

Devices for:

Hydraulic positioning of balancing weights.

Electric, magnetic positioning, like solenoids, motors.

Mechanical positioning.

Balancing with free moving parts, like balls,

Balancing by using eccentric discs.

## G01M 3/00

**Investigating fluid-tightness of structures**

### Definition statement

*This place covers:*

Investigating fluid-tightness of structures such as cables, tubes, pipes, welds, pipe joints, seals, valves, containers, radiators.

Leak detection using thermal means, pigs or moles, fluid or vacuum, tracer materials, infrasonic, sonic or ultrasonic vibrations, pressure or flow or level detection, light or by using other electric means, e.g. by observing electric discharges.

Calibration of leak detectors.

Standards used for the testing or calibration of leak detectors.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Detection of leak in washing machines	<a href="#">A47L 15/4212</a>
Membrane leak detection in blood dialysis	<a href="#">A61M 1/1692</a>
Detecting medical infusion flow leakage	<a href="#">A61M 5/16831</a>
Detecting or repairing leaks in apparatus using semi-permeable membranes	<a href="#">B01D 65/10</a>
Leak detection in membrane	<a href="#">B01D 65/102</a>
Testing for leaks in apparatus for blow-molding	<a href="#">B29C 49/80</a>
Monitoring, testing or servicing air conditioning in vehicles	<a href="#">B60H 1/00585</a>
Leakage-indicating devices for large containers	<a href="#">B65D 90/50</a>
Locating fluid leaks in boreholes or wells	<a href="#">E21B 47/10</a>
Leakage detectors for rocket-engine plants	<a href="#">F02K 9/54</a>
Leak detection in pumps	<a href="#">F04B 43/009</a>
Means for stopping flow from pipes	<a href="#">F16L 55/10</a>
Preventing, monitoring or locating loss in the pipe-line and networks	<a href="#">F17D 5/02</a>
Leak detection in steam boilers	<a href="#">F22B 37/421</a>
Leakage detection in pressure sensors	<a href="#">G01L 19/0672</a>
Investigating material strength by pressure test	<a href="#">G01N 3/12</a>
Investigating the permeability, pore volume, or surface area of porous materials	<a href="#">G01N 15/08</a>
Investigating the presence of flaws or irregularities of material by mechanical methods	<a href="#">G01N 19/08</a>
Investigating the presence of flaws, defects or contamination by the use of optical means	<a href="#">G01N 21/88</a>
Investigating the presence of flaws by the use of microwaves	<a href="#">G01N 22/02</a>
Investigating the presence of flaws by wave or particle radiation, e.g. X-rays	<a href="#">G01N 23/18</a>
Investigating the presence of flaws by the use of thermal means	<a href="#">G01N 25/72</a>
Investigating the presence of flaws by the use of electric, electro-chemical or magnetic means	<a href="#">G01N 27/00</a>
Investigating the presence of flaws by the use of ultrasonic, sonic or infrasonic waves	<a href="#">G01N 29/04</a>
Leakage detection for insulated conductors or cables characterised by their form	<a href="#">H01B 7/32</a>
Mass spectrometers per se	<a href="#">H01J 49/26</a>
Leak testing of cell or batteries	<a href="#">H01M 10/4228</a>

**G01M 3/005**

{using pigs or moles ([G01M 3/246](#), [G01M 3/2823](#) take precedence)}

**References****Limiting references**

*This place does not cover:*

Leak detection using sonic vibration in pipe using pigs moles	<a href="#">G01M 3/246</a>
Leak detection using pressure, flow or level detector in pipe using pigs moles	<a href="#">G01M 3/2823</a>

**Application-oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Pig moles per se	<a href="#">F16L 55/26</a>
General pipeline inspection	<a href="#">F17D 5/00</a>

**G01M 3/007**

{Leak detector calibration, standard leaks ([G01M 3/207](#) takes precedence)}

**Definition statement**

*This place covers:*

Dummy leakage generators for sensitivity check.

Standard volume tanks for leakage test.

Changing means of fine volume for calibration.

Fine leakage bulb.

Standard leak bodies controlling probe gas flow.

**References****Limiting references**

*This place does not cover:*

Calibration of leak detection using tracermaterials	<a href="#">G01M 3/207</a>
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**G01M 3/022**

{Test plugs for closing off the end of a pipe}

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Means for stopping flow from pipes	<a href="#">F16L 55/10</a>
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**G01M 3/025****{Details with respect to the testing of engines or engine parts}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Failures in purge control systems	<a href="#">F02M 25/0809</a>
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**G01M 3/202****{using mass spectrometer detection systems}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Mass spectrometer per se	<a href="#">H01J 49/26</a>
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**G01M 3/205****{Accessories or associated equipment; Pump constructions}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Multistage pump, specially adapted to production of high vacuum, like molecular pumps	<a href="#">F04D 19/04</a>
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**G01M 3/24****using infrasonic, sonic, or ultrasonic vibrations****Definition statement***This place covers:*

Systems for:

- Locating leak in underground pipes.
- Signal processing in the time and frequency domain.
- Signal processing using correlation techniques.
- Passive detection (no active source is used).

**References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Leak detection using pig-moles	<a href="#">G01M 3/005</a>
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**G01M 3/2892**

{for underground fuel dispensing systems ([G01M 3/30](#) takes precedence)}

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Leakage-indicating devices for large containers	<a href="#">B65D 90/50</a>
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**G01M 3/3209**

{Details, e.g. container closure devices}

**Definition statement**

*This place covers:*

Also container closure devices.

**G01M 3/3236**

{by monitoring the interior space of the containers}

**Definition statement**

*This place covers:*

Tightness of tanks, bottles, cans and methods or apparatus:

Using introduction of overpressure into interior space;

Using vacuum pump and controlling vacuum pressure and also by measuring on/off of vacuum pump or by measuring pressure change while pump cycles have predetermined on/off cycles.

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Leak testing of cell or batteries	<a href="#">H01M 10/4228</a>
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**G01M 3/3281**

{removably mounted in a test cell}

**Definition statement**

*This place covers:*

Test cells, testing pockets, test chambers, seal chambers, testing bells.

## G01M 5/00

Investigating the elasticity of structures, e.g. deflection of bridges or air-craft wings ([G01M 9/00](#) takes precedence)

### Definition statement

*This place covers:*

Investigating the elasticity of structures, e.g. deflection of bridges, aircraft wings.

Testing elastic properties of bodies or chassis, e.g. torsion-testing.

### Relationships with other classification places

[G01B](#) covers apparatus, which can be used for investigating the elasticity of structures but not specially adapted for this purpose, e.g. strain gauges. [G01H](#) covers measurement of mechanical vibrations in general.

### References

#### Limiting references

*This place does not cover:*

Aerodynamic testing; Arrangements in or on wind tunnels	<a href="#">G01M 9/00</a>
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#### References out of a residual place

*Examples of places in relation to which this place is residual:*

Investigating the properties of solids material by application of mechanical stress	<a href="#">G01N 3/00</a>
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#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Strain gauge	<a href="#">G01B</a>
Investigating the ductility of materials	<a href="#">G01N 3/28</a>
Measuring speed of fluids, e.g. of air stream; Measuring speed of bodies relative to fluids, e.g. of ship, of aircraft	<a href="#">G01P 5/00</a>

## G01M 7/00

Vibration-testing of structures; Shock-testing of structures ([G01M 9/00](#) takes precedence)

### Definition statement

*This place covers:*

Vibration testing or shock testing of structures.

### Relationships with other classification places

[G01B](#) covers apparatus, which can be used for investigating the elasticity of structures but not specially adapted for this purpose, e.g. strain gauges. [G01H](#) covers measurement of mechanical vibrations in general.

## References

### Limiting references

*This place does not cover:*

Aerodynamic testing; Arrangements in or on wind tunnels	<a href="#">G01M 9/00</a>
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### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Testing gearings or transmission mechanisms by acoustic or vibration analysis	<a href="#">G01M 13/028</a>
Testing bearings by acoustic or vibration analysis	<a href="#">G01M 13/045</a>

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Strain gauge	<a href="#">G01B</a>
Investigating the ductility of materials	<a href="#">G01N 3/28</a>
Measuring speed of fluids, e.g. of air stream; Measuring speed of bodies relative to fluids, e.g. of ship, of aircraft	<a href="#">G01P 5/00</a>

### Special rules of classification

This group has some overlap with [G01M 5/0066](#) (testing of structure using vibration or acceleration detection or excitation). It is possible to classify in both main groups ([G01M 7/00](#) and [G01M 5/00](#)): a classification in [G01M 5/00](#) are suited for documents making the emphasis on the testing of the structure, and documents making emphasis on the vibration testing are suited to be classified in [G01M 7/00](#).

## G01M 7/02

### Vibration-testing {by means of a shake table}

#### Definition statement

*This place covers:*

Environmental testing.

## G01M 7/022

### {Vibration control arrangements, e.g. for generating random vibrations}

#### Definition statement

*This place covers:*

Overload protection.

## G01M 7/025

### {Measuring arrangements}

#### Definition statement

*This place covers:*

Measurement data analysis of vibration testing.

## G01M 7/027

### {Specimen mounting arrangements, e.g. table head adapters}

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Producing shaped articles by using vibration	<a href="#">B28B 1/08</a>
Producing shaped articles by using vibration tables	<a href="#">B28B 1/0873</a>
Details of apparatus for testing material with sonic waves	<a href="#">G01N 29/22</a>

## G01M 7/08

### Shock-testing

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Shock testing of vehicles	<a href="#">G01M 17/0078</a>
Measuring force due to impact	<a href="#">G01L 5/0052</a>
Shock-testing of solid materials	<a href="#">G01N 29/045</a>
Anatomic models	<a href="#">G09B 23/00</a>

## G01M 9/00

### Aerodynamic testing; Arrangements in or on wind tunnels

#### Definition statement

*This place covers:*

Aerodynamic testing and arrangements therefore.

Also covered is parachute canopy testing, testing using infrared camera, chimney testing, space conditions, simulation, testing of autopilots, heat conversion, balancing of propellers.

#### Relationships with other classification places

[G01B](#) covers apparatus, which can be used for investigating the elasticity of structures but not specially adapted for this purpose, e.g. strain gauges. [G01H](#) covers measurement of mechanical vibrations in general.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Strain gauge	<a href="#">G01B</a>
Investigating the ductility of materials	<a href="#">G01N 3/28</a>
Measuring speed of fluids, e.g. of air stream; Measuring speed of bodies relative to fluids, e.g. of ship, of aircraft	<a href="#">G01P 5/00</a>

## G01M 9/02

### Wind tunnels

#### Definition statement

*This place covers:*

Complete arrangements as well as simulations.

## G01M 9/04

### Details

#### Definition statement

*This place covers:*

Partial details of wind tunnels, measurements arrangements, investigation properties, like acoustic or wind distribution, wall arrangements, wind or smoke or hot gas production, production of environmental conditions, supersonic flow generators, high speed plasma generators, holding or support devices of the object under test, vibration absorbers, isolation, high pressure wave generator.

## G01M 9/06

### Measuring arrangements specially adapted for aerodynamic testing

#### Definition statement

*This place covers:*

Theoretical arrangements for aerodynamic measuring, constructions in combination with visualisation methods of flow profiles, simulation, space conditions, turbulators on airfoils for transient simulation, balances incorporated in test object.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring volume flow, flow rate	<a href="#">G01F</a>
Measuring multiple component of the force	<a href="#">G01L 5/16</a>

## G01M 9/08

### Aerodynamic models

#### Definition statement

*This place covers:*

Theoretical models and model construction for aerodynamic measurements or observing or form creation.

## G01M 10/00

### Hydrodynamic testing; Arrangements in or on ship-testing tanks or water tunnels

#### Definition statement

*This place covers:*

Hydrodynamic testing and arrangements therefore, e.g. means for studying the flow of fluid about the object to be tested.

#### Relationships with other classification places

[G01B](#) covers apparatus, which can be used for investigating the elasticity of structures but not specially adapted for this purpose, e.g. strain gauges. [G01H](#) covers measurement of mechanical vibrations in general.

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Monitoring properties or operating parameters of	<a href="#">B63B 79/00</a>
Strain gauge	<a href="#">G01B</a>
Investigating the ductility of materials	<a href="#">G01N 3/28</a>
Measuring speed of fluids, e.g. of air stream; Measuring speed of bodies relative to fluids, e.g. of ship, of aircraft	<a href="#">G01P 5/00</a>

## G01M 11/00

### Testing of optical apparatus; Testing structures by optical methods not otherwise provided for

#### Definition statement

*This place covers:*

Testing of optical apparatus, e.g. testing of fiber, testing of mirror, testing of optical properties of lenses (measuring refractive power, geometrical properties or aberrations, material or chromatic transmission properties, the optical modulation transfer function of optical apparatus and etc.) or mechanical properties. Testing of headlights. Testing structures by optical methods not otherwise provided for.

This group also covers theoretical articles, calibration arrangements not otherwise provided, parts of testing systems, like power meters, testing resistance to radiation, end face monitoring, photo acoustic methods.

## Relationships with other classification places

This group is residual place for classifying testing of optical devices or apparatus not provided for in any other subclass of the CPC. Testing of particular optical devices or apparatus is often covered by the respective subclass provided for that optical devices or apparatus.

Testing of optical devices or apparatus is classified in [G01M 11/00](#) only if there is no appropriate place for that subject matter elsewhere.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for testing or checking weapon sighting devices	<a href="#">F41G 1/54</a>
Devices for testing or checking aiming and laying means	<a href="#">F41G 3/32</a>
Interferometers	<a href="#">G01B 9/02</a>
Measuring arrangements characterised by the use of optical means	<a href="#">G01B 11/00</a>
Calibrating optical contour or curvature measuring devices	<a href="#">G01B 11/2504</a>
Photometry	<a href="#">G01J 1/00</a>
Investigating or analysing materials by the use of optical means	<a href="#">G01N 21/00</a>
Testing electrical properties of light emitting diodes, laser diodes or photodiodes	<a href="#">G01R 31/2635</a>
Testing electrical properties of lamps	<a href="#">G01R 31/44</a>
Optical elements, systems or apparatus	<a href="#">G02B</a>
Devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light arriving from an independent light source, e.g. switching, gating, or modulating	<a href="#">G02F 1/00</a>
Repairing of testing liquid crystal displays	<a href="#">G02F 1/1309</a>
Testing correct operation of photographic apparatus	<a href="#">G03B 43/00</a>
Testing and control of apparatus for microlithography	<a href="#">G03F 7/70483</a> – <a href="#">G03F 7/70541</a> , <a href="#">G03F 7/70558</a> , <a href="#">G03F 7/70591</a> – <a href="#">G03F 7/70683</a>
Inspection of images for flow detection	<a href="#">G06T 7/0002</a>
Electronic inspection or testing of displays, like LED or LCD	<a href="#">G09G 3/006</a>
Testing electrical properties of solar cells	<a href="#">H02S 50/10</a>
Diagnosis, testing or measuring for television systems or their details	<a href="#">H04N 17/00</a>
Diagnosis, testing or measuring for television cameras	<a href="#">H04N 17/002</a>
Monitoring or testing of lasers	<a href="#">H04S 3/008</a>

## Synonyms and Keywords

In patent documents, the following abbreviations are often used:

FBG	Fibre Bragg Grating
LCD	Liquid Crystal display

LED	Light Emitting Diode
OFDR	Optical Frequency Domain Reflectometry
OTDR	Optical Time Domain Reflectometry
PDL	Polarisation Dispersion Loss
PMD	Polarisation Mode Dispersion

## G01M 11/005

{Testing of reflective surfaces, e.g. mirrors}

### References

#### *Informative references*

Attention is drawn to the following places, which may be of interest for search:

Optical means to measure roughness of a surface	<a href="#">G01B 11/30</a>
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## G01M 11/0221

{by determining the optical axis or position of lenses}

### References

#### *Informative references*

Attention is drawn to the following places, which may be of interest for search:

Testing the alignment of axes using optical means	<a href="#">G01B 11/27</a>
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## G01M 11/0242

{by measuring geometrical properties or aberrations}

### References

#### *Informative references*

Attention is drawn to the following places, which may be of interest for search:

Measuring contours or curvatures by optical means	<a href="#">G01B 11/24</a>
Measuring geometric parameters required to locate ophthalmic lenses in spectacles frames	<a href="#">G02C 13/005</a>

## G01M 11/0278

{Detecting defects of the object to be tested, e.g. scratches or dust (investigating the presence of flaws or contamination on materials by optical means [G01N 21/88](#))}

### Definition statement

*This place covers:*

This group also covers the detection of marks on lenses



## References

### Limiting references

*This place does not cover:*

Investigating the presence of flaws or contamination on materials by optical means	<a href="#">G01N 21/88</a>
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### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Inspecting transparent materials	<a href="#">G01N 21/958</a>
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## G01M 11/06

### Testing the alignment of vehicle headlight devices

#### Definition statement

*This place covers:*

Systems mainly projecting the light beam on a surface.

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Arrangements for automatically correcting headlights in vehicle	<a href="#">G01B 11/30</a>
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## G01M 11/08

### Testing mechanical properties {([G01M 11/005](#) takes precedence)}

#### References

##### Limiting references

*This place does not cover:*

Testing of reflective surfaces, e.g. mirrors	<a href="#">G01M 11/005</a>
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#### Special rules of classification

This sub-group has some overlap with [G01M 5/00](#) (testing of mechanical properties of structures). It is possible to classify in both main group ([G01M 11/00](#) and [G01M 5/00](#)): a classification in [G01M 5/00](#) is suited for documents having the emphasis on the testing of the structure, and documents having the emphasis on the optical testing should be classified in [G01M 11/00](#).

## G01M 11/088

{of optical fibres; Mechanical features associated with the optical testing of optical fibres}

### Definition statement

*This place covers:*

Also thermal testing, in flight testing, testing pay-out of a canister.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Mechanical testing of thin elongated materials, like filament, web, tape or non-optical fibres	<a href="#">G01N 2203/028</a>
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## G01M 11/30

{Testing of optical devices, constituted by fibre optics or optical waveguides}

### Relationships with other classification places

In general, this group covers the testing of optical by measuring one or more given physical parameters; however, if it concerns the use of fibre for determining one or more physical parameters, see the corresponding fields (for instance [G01L](#) for force measurement, [G01K](#) for temperature measurement ...).

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Measuring a length, thickness, angle with an optical fibre	<a href="#">G01B 9/00</a>
Measuring a non-specific physical parameter with an optical fibre	<a href="#">G01D 5/353</a>
Measuring force with an optical fibre	<a href="#">G01L 1/242</a>
Monitoring or testing optical transmission line	<a href="#">H04B 10/07</a>
Monitoring or testing optical amplifier	<a href="#">H04B 10/0731</a>
Monitoring or testing optical transmission line in use	<a href="#">H04B 10/075</a>
Optical multiplexing system	<a href="#">H04J 14/00</a>
Spatial multiplexing	<a href="#">H04J 14/05</a>
Orbital angular momentum [OAM] multiplex systems	<a href="#">H04J 14/07</a>

### Special rules of classification

There is an overlap between [G01M 11/30](#) and [H04B 10/07](#) (testing of optical transmission line) and double classification is possible. Documents for [G01M 11/30](#) should have an emphasis on the default detection method.

**G01M 11/31**

**{with a light emitter and a light receiver being disposed at the same side of a fibre or waveguide end-face, e.g. reflectometers}**

**Definition statement**

*This place covers:*

Testing of light fibers with light source and detector on the same end, measuring connectors, optical switches, splitter in optical transmission lines, measuring end shape of fiber backscatter of cw for power measurements.

For localisation of faults, local monitoring of fibers see subgroups of [G01M 11/31](#).

**G01M 11/3109**

**{Reflectometers detecting the back-scattered light in the time-domain, e.g. OTDR}**

**Definition statement**

*This place covers:*

Localisation of attenuation or faults by use of single pulses and direct detection of delay-time and intensity, like OTDR, averaging, box-car, references fibers, dummy fibers, photon counting.

**G01M 11/3118**

**{using coded light-pulse sequences}**

**Definition statement**

*This place covers:*

Devices using pseudo-random signals, correlation techniques, Golay-code.

**G01M 11/3172**

**{Reflectometers detecting the back-scattered light in the frequency-domain, e.g. OFDR, FMCW, heterodyne detection}**

**Definition statement**

*This place covers:*

Local oscillators, frequency shifting interferometers.

**G01M 11/3181**

**{Reflectometers dealing with polarisation}**

**Definition statement**

*This place covers:*

Measurements or compensation of polarisation backscatter.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Polarization Mode Dispersion measurement in transmission	<a href="#">G01M 11/336</a>
Polarization Dependent Loss measurement in transmission	<a href="#">G01M 11/337</a>

## G01M 11/319

**{Reflectometers using stimulated back-scatter, e.g. Raman or fibre amplifiers}**

### Definition statement

*This place covers:*

Measurements on doped fibers, measurements using stimulated Raman or Brillouin scattering, or using laserloops or ringlasers for generating stimulated backscatter.

## G01M 11/35

**{in which light is transversely coupled into or out of the fibre or waveguide, e.g. using integrating spheres ([G01M 11/31](#) takes precedence)}**

### Definition statement

*This place covers:*

Also light injection by microbending.

## G01M 11/37

**{in which light is projected perpendicularly to the axis of the fibre or waveguide for monitoring a section thereof}**

### Definition statement

*This place covers:*

Also refractive index profile measurements of fibers, fiber core diameter or shape or excentricity measurements, and also transversal camera monitoring.

## G01M 13/00

### Testing of machine parts

#### Definition statement

*This place covers:*

Testing of machine parts, such as: sealing rings, gearings, power-transmitting couplings or clutches, power-transmitting endless, e.g. belts, chains, bearings.

#### Relationships with other classification places

[G01L](#) covers instruments which can be used for testing of machine parts, e.g. gearing, transmission mechanisms, of steering or rolling behavior of vehicles, e.g. measuring efficiency, steering angles, steering forces, but not specially adapted for these purposes.

Relationships with other classification places

[G01N](#) covers investigating, i.e. testing or determining, the properties of materials, as opposed to testing machine parts, which is covered by [G01M 13/00](#).

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for measuring, signaling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles	<a href="#">B60C 23/00</a>
Monitoring or diagnostic devices for exhaust-gas treatment apparatus	<a href="#">F01N 11/00</a>
Indicating or supervising devices of internal-combustion engines	<a href="#">F02B 77/08</a>
Running-in of internal-combustion engines	<a href="#">F02B 79/00</a>
Controlling combustion engines	<a href="#">F02D</a>
Rocket-engine plants characterised by specially adapted arrangements for testing or measuring	<a href="#">F02K 9/96</a>
Apparatus for testing, tuning or synchronising carburettors, e.g. carburettor flow stands	<a href="#">F02M 19/01</a>
Testing fuel-injection apparatus	<a href="#">F02M 65/00</a>
Testing of ignition installations peculiar to internal-combustion engines	<a href="#">F02P 17/00</a>
Testing of wind motors	<a href="#">F03D 17/00</a>
Testing machines, pumps, or pumping installations	<a href="#">F04B 51/00</a>
Testing fluid-pressure actuator systems or apparatus, so far as not provided for elsewhere	<a href="#">F15B 19/00</a>
Monitoring wear or stress of gearing elements	<a href="#">F16H 57/01</a>
Detecting malfunction or potential malfunction of change-speed- or reversing-gearings	<a href="#">F16H 61/12</a>
Detecting malfunction or potential malfunction of hydrostatic gearings	<a href="#">F16H 61/4192</a>
Arrangements for monitoring the condition or operation of elastic sealings	<a href="#">F16J 15/3296</a>
Special means in or on valves indicating or recording operation thereof	<a href="#">F16K 37/00</a>
Testing of ignition installations of combustion apparatus	<a href="#">F23Q 23/00</a>
Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of tractive or propulsive force and velocity	<a href="#">G01L 3/24</a>
Measuring wheel side-thrust	<a href="#">G01L 5/20</a>
Measuring the force applied to control members, e.g. control members of vehicles, triggers	<a href="#">G01L 5/22</a>
Determining the characteristic of torque in relation to revolutions per unit of time	<a href="#">G01L 5/26</a>
Testing brakes	<a href="#">G01L 5/28</a>
Devices or apparatus for measuring tyre pressure or the pressure in other inflated bodies	<a href="#">G01L 17/00</a>
Devices for detecting or indicating knocks in internal-combustion engines	<a href="#">G01L 23/22</a>
Devices for measuring pressure in inlet or exhaust ducts of internal-combustion engines	<a href="#">G01L 23/24</a>

Means for indicating positions or pistons or cranks of internal-combustion engines by measuring pressure	<a href="#">G01L 23/30</a>
Testing or calibrating of apparatus for measuring force, torque, work, mechanical power, or mechanical efficiency	<a href="#">G01L 25/00</a>
Testing or calibrating of apparatus for measuring fluid pressure	<a href="#">G01L 27/00</a>
Pressure-testing of materials	<a href="#">G01N 3/12</a>
Investigating machinability by cutting tools; Investigating the cutting ability of tools	<a href="#">G01N 3/58</a>

## **G01M 13/02**

### **Gearings; Transmission mechanisms**

#### **Definition statement**

*This place covers:*

Also testing of power transmitting rotating elements, like gearings, driveshaft, differentials, vehicle power transmissions, coupling, belt drives, temperature or pressure or other adaptation means, gear shifting, control tests of automatic transmission, life usage, shaft adjustments, rotation angle measurements, tests of synchronizers.

#### **References**

##### **Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Transmission coupling, clutches in general	<a href="#">F16D</a>
Transmission means using belt, cables, ropes in general	<a href="#">F16G</a>
Contour measurements on gear teeth with mechanical means	<a href="#">G01B 5/202</a>
Distance measurements on gear teeth	<a href="#">G01B 7/146</a>
Contour measurements on gear teeth with electrical or magnetic means	<a href="#">G01B 7/283</a>

## **G01M 13/025**

### **Test-benches with rotational drive means and loading means; Load or drive simulation**

#### **Definition statement**

*This place covers:*

Also devices with electrical or hydraulic drive means, simulation of combustion engines, brake and inertial forces, measuring power transmitting characteristics, of vehicle transmission, driveshaft.

## G01M 13/026

**Test-benches of the mechanical closed-loop type, i.e. having a gear system constituting a closed-loop in combination with the object under test**

### Definition statement

*This place covers:*

Also devices with power circulation type, ring connected multiple gearbox driveshaft.

## G01M 13/027

**Test-benches with force-applying means, e.g. loading of drive shafts along several directions**

### Definition statement

*This place covers:*

Also devices with application or measurement of different component measuring steering forces on drive, steering trains, radial or vertical forces on vehicle axels, driveshaft.

## G01M 13/04

### Bearings

### Definition statement

*This place covers:*

Also devices for monitoring bearing with temperature sensor.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Vibration testing of structures in general	<a href="#">G01M 7/00</a>
Bearing with rolling contact in general	<a href="#">F16C 19/00</a>
Force sensor associated with a bearing	<a href="#">G01L 5/0009</a>

## G01M 15/00

### Testing of engines

### Definition statement

*This place covers:*

Testing of engines, e.g. by monitoring different engine parameters: pressure, temperature, velocity, vibration, and power, detecting misfire, exhaust gases, combustion flame.

### Relationships with other classification places

[G01L](#) covers instruments which can be used for testing of machine parts, e.g. gearing, transmission mechanisms, of steering or rolling behavior of vehicles, e.g. measuring efficiency, steering angles, steering forces, but not specially adapted for these purposes.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for measuring, signaling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles	<a href="#">B60C 23/00</a>
Monitoring or diagnostic devices for exhaust-gas treatment apparatus	<a href="#">F01N 11/00</a>
Indicating or supervising devices of internal-combustion engines	<a href="#">F02B 77/08</a>
Running-in of internal-combustion engines	<a href="#">F02B 79/00</a>
Controlling combustion engines	<a href="#">F02D</a>
Rocket-engine plants characterised by specially adapted arrangements for testing or measuring	<a href="#">F02K 9/96</a>
Apparatus for testing, tuning or synchronising carburettors, e.g. carburettor flow stands	<a href="#">F02M 19/01</a>
Testing fuel-injection apparatus	<a href="#">F02M 65/00</a>
Testing of ignition installations peculiar to internal-combustion engines	<a href="#">F02P 17/00</a>
Testing of ignition installations of combustion apparatus	<a href="#">F23Q 23/00</a>
Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of torque and revolutions per unit of time, by multiplying the values of tractive or propulsive force and velocity	<a href="#">G01L 3/24</a>
Measuring wheel side-thrust	<a href="#">G01L 5/20</a>
Measuring the force applied to control members, e.g. control members of vehicles, triggers	<a href="#">G01L 5/22</a>
Determining the characteristic of torque in relation to revolutions per unit of time	<a href="#">G01L 5/26</a>
Testing brakes	<a href="#">G01L 5/28</a>
Devices or apparatus for measuring tyre pressure or the pressure in other inflated bodies	<a href="#">G01L 17/00</a>
Devices for detecting or indicating knocks in internal-combustion engines	<a href="#">G01L 23/22</a>
Devices for measuring pressure in inlet or exhaust ducts of internal-combustion engines	<a href="#">G01L 23/24</a>
Means for indicating positions of pistons or cranks of internal-combustion engines by measuring pressure	<a href="#">G01L 23/30</a>
Testing or calibrating of apparatus for measuring force, torque, work, mechanical power, or mechanical efficiency	<a href="#">G01L 25/00</a>
Testing or calibrating of apparatus for measuring fluid pressure	<a href="#">G01L 27/00</a>
Pressure-testing	<a href="#">G01N 3/12</a>
Investigating machinability by cutting tools; investigating the cutting ability of tools	<a href="#">G01N 3/58</a>



## G01M 15/04

### Testing internal-combustion engines

#### References

##### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Monitoring or diagnostic devices for exhaust-gas treatment apparatus	<a href="#">F01N 11/00</a>
Indicating or supervising devices of internal-combustion engines	<a href="#">F02B 77/08</a>
Running in of internal-combustion engines	<a href="#">F02B 79/00</a>
Controlling combustion engines	<a href="#">F02D</a>
Apparatus for testing, tuning or synchronising carburettors, e.g. carburettor flow stands	<a href="#">F02M 19/01</a>
Testing fuel-injection apparatus	<a href="#">F02M 65/00</a>
Testing internal-combustion engine ignition, e.g. timing	<a href="#">F02P 17/00</a>
Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of torque and revolutions per unit of time, by multiplying the values of tractive or propulsive force and velocity	<a href="#">G01L 3/24</a>
Determining the characteristic of torque in relation to revolutions per unit of time	<a href="#">G01L 5/26</a>
Devices for detecting or indicating knocks in internal-combustion engines	<a href="#">G01L 23/22</a>
Devices for measuring pressure in inlet or exhaust ducts of internal combustion engines	<a href="#">G01L 23/24</a>
Means for indicating positions of pistons or cranks of internal-combustion engines by measuring pressure	<a href="#">G01L 23/30</a>

## G01M 15/14

### Testing gas-turbine engines or jet-propulsion engines

#### References

##### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Rocket-engine plants characterised by specially adapted arrangements for testing or measuring	<a href="#">F02K 9/96</a>
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## G01M 17/00

Testing of vehicles (testing fluid tightness [G01M 3/00](#); testing elastic properties of bodies or chassis, e.g. torsion-testing, [G01M 5/00](#); testing alignment of vehicle headlight devices [G01M 11/06](#); testing of engines [G01M 15/00](#))

### Definition statement

*This place covers:*

Testing of different parts of vehicles, e.g. wheels, tyres, endless-tracks, suspension, or of damping as a part of wheeled or endless-traced vehicles or suspension, axles, wheels suspension, or of axles as a part of railway vehicles.

### Relationships with other classification places

[G01L](#) covers instruments which can be used for machine parts, e.g. gearing, transmission mechanisms, of steering or rolling behavior of vehicles, e.g. measuring efficiency, steering angles, steering forces, but not specially adapted for these purposes.

### References

#### Limiting references

*This place does not cover:*

Testing fluid tightness	<a href="#">G01M 3/00</a>
Testing elastic properties of bodies or chassis, e.g. torsion testing	<a href="#">G01M 5/00</a>
Testing alignment of vehicle head-lighting devices	<a href="#">G01M 11/06</a>
Testing of engine	<a href="#">G01M 15/00</a>

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Devices for measuring, signalling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles	<a href="#">B60C 23/00</a>
Monitoring or diagnostic devices for exhaust-gas treatment apparatus	<a href="#">F01N 11/00</a>
Indicating or supervising devices of internal-combustion engines	<a href="#">F02B 77/08</a>
Running-in of internal-combustion engines	<a href="#">F02B 79/00</a>
Controlling combustion engines	<a href="#">F02D</a>
Rocket-engine plants characterised by specially adapted arrangements for testing or measuring	<a href="#">F02K 9/96</a>
Apparatus for testing, tuning or synchronising carburetors, e.g. carburetor flow stands	<a href="#">F02M 19/01</a>
Testing fuel-injection apparatus	<a href="#">F02M 65/00</a>
Testing of ignition installations peculiar to internal-combustion engines	<a href="#">F02P 17/00</a>
Testing of ignition installations of combustion apparatus	<a href="#">F23Q 23/00</a>
Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of tractive or propulsive force and velocity	<a href="#">G01L 3/24</a>
Measuring wheel side-thrust	<a href="#">G01L 5/20</a>

Measuring the force applied to control members, e.g. control members of vehicles, triggers	<a href="#">G01L 5/22</a>
Determining the characteristic of torque in relation to revolutions per unit of time	<a href="#">G01L 5/26</a>
Testing brakes	<a href="#">G01L 5/28</a>
Devices or apparatus for measuring tyre pressure or the pressure in other inflated bodies	<a href="#">G01L 17/00</a>
Devices for detecting or indicating knocks in internal-combustion engines	<a href="#">G01L 23/22</a>
Devices for measuring pressure in inlet or exhaust ducts of internal-combustion engines	<a href="#">G01L 23/24</a>
Means for indicating positions or pistons or cranks of internal-combustion engines by measuring pressure	<a href="#">G01L 23/30</a>
Testing or calibrating of apparatus for measuring force, torque, work, mechanical power, or mechanical efficiency	<a href="#">G01L 25/00</a>
Testing or calibrating of apparatus for measuring fluid pressure	<a href="#">G01L 27/00</a>
Pressure-testing	<a href="#">G01N 3/12</a>
Investigating machinability by cutting tools; investigating the cutting ability of tools	<a href="#">G01N 3/58</a>

## **G01M 17/0072**

{the wheels of the vehicle co-operating with rotatable rolls ([G01M 17/022](#), [G01M 17/045](#), [G01M 17/065](#) take precedence)}

### **Definition statement**

*This place covers:*

Devices with dynamometers, associated flywheel assemblies, constructions (for search see also [G01L 3/16](#), rotary absorption dynamometers), roller assemblies (without specific roller construction), measuring or calculation arrangements, endless belts, flat belts, dynamometer control arrangements, like system using feedback.

### **References**

#### **Limiting references**

*This place does not cover:*

The tyre co-operates with rotatable rolls	<a href="#">G01M 17/022</a>
The vehicle wheels co-operating with rotatable rollers	<a href="#">G01M 17/045</a>
The vehicle wheels co-operating with rotatable rolls	<a href="#">G01M 17/065</a>

#### **Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Rotary-absorption dynamometers, e.g. of brake type	<a href="#">G01L 3/16</a>
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**G01M 17/0074****{Details, e.g. roller construction, vehicle restraining devices}****Definition statement***This place covers:*

Automatic shifters of gears, brake, gas pedal, devices for applying a variable load on the vehicle, safety arrangements, vehicle lifting devices, vibrators (for search see also [G01M 7/04](#)) and special applications, like testing of remote controlled toy car.

**References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Monodirectional test stands	<a href="#">G01M 7/04</a>
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**G01M 17/0078****{Shock-testing of vehicles}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Shock testing of structure	<a href="#">G01M 7/08</a>
Measuring force due to impact	<a href="#">G01L 5/0052</a>
Anatomic models	<a href="#">G09B 23/00</a>

**G01M 17/013****Wheels****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Railway wheel testing	<a href="#">G01M 17/10</a>
Testing of wheel alignment by optical means	<a href="#">G01B 11/275</a>

**G01M 17/02****Tyres****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Tyre tread bands and tread patterns	<a href="#">B60C 11/00</a>
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Tyre tread bands and tread patterns wear indicating arrangements	<a href="#">B60C 11/24</a>
Measuring profile depth	<a href="#">G01B 21/18</a>

## G01M 17/021

{Tyre supporting devices, e.g. chucks (for balancing [G01M 1/04](#))}

### Special rules of classification

Wheel testing is not to be classified in this group but mainly testing tires with adjustable chucks, two rims, etc.

## G01M 17/022

{the tyre co-operating with rotatable rolls}

### Definition statement

*This place covers:*

Measuring uniformity, concentricity, tread problems, radial forces, elastic deformation, rolling resistance, cornering resistance, yaw attitude, drag force, side-wall deformation, tire air pressure, impact resistance, conicity, with a flat belt, single roller, multiple rollers, hydraulic motor, endless belt, dynamic load, grooved drum, suspension simulation, vibration exciters, setting means for slip, camber angle, rubber removing brush, water jets.

## G01M 17/024

{combined with tyre surface correcting or marking means}

### Definition statement

*This place covers:*

Compensation by grinding the shoulders, by grinding the tire tread, by compensating radial, lateral or tangential forces.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Marking location of imbalance	<a href="#">G01M 1/26</a>
Compensating imbalance by removing material	<a href="#">G01M 1/34</a>

## G01M 17/06

Steering behaviour; Rolling behaviour

### Definition statement

*This place covers:*

Vehicle diagnostic devices, side slip, axel vibrations, toe-angle, wheel alignment, tire tread, caster trail, cornering.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring steering angles	<a href="#">G01B</a>
Measuring steering forces	<a href="#">G01L 5/221</a>

## G01M 17/08

### Railway vehicles

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Testing of railways brake system	<a href="#">B60T 17/228</a>
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## G01M 99/00

### Subject matter not provided for in other groups of this subclass

## References

### References out of a residual place

Examples of places in relation to which this place is residual:

Testing static or dynamic balance of machines or structures	<a href="#">G01M 1/00</a>
Investigating fluid tightness of structures	<a href="#">G01M 3/00</a>
Investigating the elasticity of structures, e.g. deflection of bridges, aircraft wings	<a href="#">G01M 5/00</a>
Vibration testing of structures; Shock-testing of structures	<a href="#">G01M 7/00</a>
Aerodynamic testing; Arrangements in or on wind tunnels	<a href="#">G01M 9/00</a>
Hydrodynamic testing; Arrangements in or on ship-testing tanks or water tunnels	<a href="#">G01M 10/00</a>
Testing of optical apparatus	<a href="#">G01M 11/00</a>
Testing of machine parts	<a href="#">G01M 13/00</a>
Testing of engines	<a href="#">G01M 15/00</a>
Testing of vehicles	<a href="#">G01M 17/00</a>

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Testing instrument for artificial joints	<a href="#">A61F 2/468</a>
Testing of non-implantable prostheses	<a href="#">A61F 2/76</a>
Testing the effectiveness of sterilization	<a href="#">A61L 2/28</a>
Measuring golf clubs, bats or rackets	<a href="#">A63B 51/005</a> , <a href="#">A63B 60/42</a> , <a href="#">A63B 60/46</a>

## Informative references

Filter condition indicators	<a href="#">B01D 46/0086</a>
Testing of membranes or membrane apparatus	<a href="#">B01D 65/10</a>
Controlling or analyzing typewriter or other selective printing mechanism	<a href="#">B41J 29/393</a>
Testing or monitoring air-conditioning of vehicles	<a href="#">B60H 1/00585</a>
Testing of parachutes	<a href="#">B64D 21/00</a>
Testing foundations or foundations structures	<a href="#">E02D 33/00</a>
Testing characteristics of the spark in internal combustion engine ignition	<a href="#">F02P 17/12</a>
Calibrating optical contour or curvature measuring devices	<a href="#">G01B 11/2504</a>
Calibration of coordinate measuring apparatus	<a href="#">G01B 21/042</a>
Testing, calibrating, or compensating of compasses	<a href="#">G01C 17/38</a>
Detection of malfunction of sensor per se	<a href="#">G01D 3/08</a>
Calibrating of sensor per se	<a href="#">G01D 18/00</a>
Testing or calibrating apparatus for measuring volume, volume flow or liquid level or for metering by volume	<a href="#">G01F 25/00</a>
Testing or calibrating of weighing apparatus	<a href="#">G01G 23/01</a>
Testing or calibrating of thermometers	<a href="#">G01K 15/00</a>
Testing or calibrating calorimeters	<a href="#">G01K 19/00</a>
Testing or calibrating force, work or torque apparatus testing and calibrating fluid pressure sensorArrangements for testing electric properties;	<a href="#">G01L 25/00</a>
Arrangements for locating electric faults;	<a href="#">G01L 27/00</a>
Arrangements for electrical testing characterized by what is being tested not provided for elsewhere	<a href="#">G01R 31/00</a>
Testing or calibrating meteorological apparatus	<a href="#">G01W 1/18</a>
Testing correct operation of photographic apparatus or parts thereof	<a href="#">G03B 43/00</a>
Quality surveillance of production	<a href="#">G05B 19/41875</a>
Testing or monitoring of control systems	<a href="#">G05B 23/00</a>
Registering or indicating the condition or the working of machines or other apparatus	<a href="#">G07C 3/00</a>
Checking or monitoring of signalling or alarm systems	<a href="#">G08B 29/00</a>
Monitoring; Testing of fusion reactors	<a href="#">G21C 17/00</a>
Testing or measuring during manufacture or treatment of semiconductor devices	<a href="#">H01L 22/00</a>
Testing of electrical properties of sparking plugs	<a href="#">H01T 13/60</a>
Calibration or testing of analogue/digital or digital/analogue converters	<a href="#">H03M 1/10</a>
Monitoring; Testing of line transmission systems	<a href="#">H04B 3/46</a>
Monitoring or testing of relay systems	<a href="#">H04B 17/40</a>
Diagnosis, testing or measuring for television systems or their details	<a href="#">H04N 17/00</a>
Monitoring arrangements; Testing arrangements of acoustic electromechanical transducers	<a href="#">H04R 29/00</a>

**Special rules of classification**

This group is residual place for classifying testing of structures or of apparatus, not provided for elsewhere.

Testing of particular devices or apparatus is often covered by the respective subclass provided for that devices or apparatus. Testing of particular devices or apparatus is classified in [G01M 99/00](#) only if there is no appropriate place elsewhere for that subject matter.