

## G01H

**MEASUREMENT OF MECHANICAL VIBRATIONS OR ULTRASONIC, SONIC OR INFRASONIC WAVES** (generation of mechanical vibrations without measurement [B06B](#), [G10K](#); measuring position, direction or velocity of an object [G01C](#), [G01S](#); measuring quasi-steady pressure of a fluid [G01L 7/00](#); determining unbalance [G01M 1/14](#); determining properties of material by sonic or ultrasonic waves transmitted therethrough [G01N](#); systems using the reflection or reradiation of acoustic waves, e.g. acoustic imaging, [G01S 15/00](#); seismology, seismic prospecting, acoustic prospecting [G01V 1/00](#); acousto-optical devices per se [G02F](#); obtaining records by techniques analogous to photography using ultrasonic, sonic or infrasonic waves [G03B 42/06](#); speech analysis or synthesis, speech recognition [G10L](#); information storage based on relative movement between record carrier and transducer [G11B](#); piezo-electric, electrostrictive or magnetostrictive elements in general [H01L](#); manufacture of electromechanical resonators by processes which include measurement of frequency with consequential modification of the resonator [H03H 3/00](#), {[H03H 3/007](#), [H03H 9/00](#)})

### Definition statement

*This place covers:*

Apparatus or methods for the measurement, or measurement in combination with generation, of mechanical vibrations or the like, and particularly for the measurement of:

- mechanical vibrations or ultrasonic, sonic or infrasonic waves by using radiation-sensitive means, e.g. optical means;
- mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties;
- mechanical vibrations or ultrasonic, sonic or infrasonic waves by other means;
- vibrations in solids by using direct conduction to the detector;
- vibrations in fluids by using a detector in a fluid;
- propagation velocity of ultrasonic, sonic or infrasonic waves;
- reverberation time;
- resonant frequency;
- mechanical or acoustic impedance.

### References

#### Limiting references

*This place does not cover:*

Measuring force or stress	<a href="#">G01L 1/00</a>
Detecting knocks in internal-combustion engines	<a href="#">G01L 23/22</a>
Testing dynamic balance of machines or structure, determining unbalance	<a href="#">G01M 1/14</a>
Determining unbalance by oscillating the body to be tested and converting vibrations due to unbalance into electric variables	<a href="#">G01M 1/22</a>
Vibration testing of structures	<a href="#">G01M 7/02</a>

Investigating or analysing materials by the use of ultrasonic, sonic or infrasonic waves; Visualisation of the interior of objects by transmitting ultrasonic or sonic waves through the object	<a href="#">G01N 29/00</a>
Measuring acceleration, deceleration, shock	<a href="#">G01P 15/00</a>
Systems using the reflection or reradiation of acoustic waves, e.g. sonar systems	<a href="#">G01S 15/00</a>
Sonar systems designed for mapping or imaging	<a href="#">G01S 15/89</a>
Seismology; Seismic or acoustic prospecting or detecting	<a href="#">G01V 1/00</a>
Manufacture of electromechanical resonators by processes which include measurement of frequency with consequential modification of the resonator	<a href="#">H03H 3/007</a>

### **Informative references**

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

Generating or transmitting mechanical vibrations in solids without measurement	<a href="#">B06B</a>
Measuring distance, levels or bearings; Navigation; Gyroscopic instruments; Photogrammetry or videogrammetry	<a href="#">G01C</a>
Measuring pressure of a fluid or fluent solid material	<a href="#">G01L 7/00- G01L 19/00</a>
Acousto-optical devices	<a href="#">G02F 1/11</a> , <a href="#">G02F 1/33</a>
Obtaining records by techniques analogous to photography using ultrasonic, sonic or infrasonic waves	<a href="#">G03B 42/06</a>
Musical instruments	<a href="#">G10B- G10H</a>
Generating or transmitting mechanical vibrations in fluids without measurement	<a href="#">G10K</a>
Arrangements for producing a reverberation or echo sound in fluids	<a href="#">G10K 15/08</a>
Speech analysis or synthesis; Speech recognition	<a href="#">G10L</a>
Information storage based on relative movement between record carrier and transducer	<a href="#">G11B</a>
Piezo-electric, electro-strictive or magneto-strictive elements	<a href="#">H01L 41/00</a>

## **G01H 1/00**

**Measuring {characteristics of} vibrations in solids by using direct conduction to the detector ([G01H 9/00](#), [G01H 11/00](#) take precedence)**

### **Definition statement**

*This place covers:*

Measuring characteristics of vibrations of rotating machines, using direct contact of the transducer, microphones, or optical detectors.

Measuring characteristics of vibrations of the rotor of turbo machines, using direct contact of the transducer, microphones, or optical detectors.

## References

### Limiting references

*This place does not cover:*

Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by using radiation-sensitive means, e.g. optical means	<a href="#">G01H 9/00</a>
Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties,	<a href="#">G01H 11/00</a>
Transmitting measuring signals from a borehole to the surface by transmitting torsional acoustic waves through the drillstring or casing	<a href="#">E21B 47/16</a>

### Special rules of classification

Except for [G01H 1/10](#) (torsional vibrations), groups [G01H 1/04](#) - [G01H 1/16](#) are not currently used for the classification of new documents. Since no distinction with regard to transverse, torsional or longitudinal vibrations has been made while classifying documents, the subject matter which is presumably covered by these groups is effectively classified in [G01H 1/00](#).

## G01H 3/00

**Measuring {characteristics of} vibrations by using a detector in a fluid ([G01H 7/00](#), [G01H 9/00](#), [G01H 11/00](#) take precedence)**

### Definition statement

*This place covers:*

- Measuring frequency.
- Measuring amplitude or power.
- Dosimeters.

## References

### Limiting references

*This place does not cover:*

Measuring reverberation time	<a href="#">G01H 7/00</a>
Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by using radiation-sensitive means, e.g. optical means	<a href="#">G01H 9/00</a>
Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties,	<a href="#">G01H 11/00</a>
Devices for measuring rapid changes, such as oscillations, in the pressure of steam, gas, or liquid	<a href="#">G01L 23/00</a>

## G01H 3/005

**{Testing or calibrating of detectors covered by the subgroups of [G01H 3/00](#) (calibrating geophysical instruments, e.g. seismic receivers [G01V 13/00](#))}**

### Relationships with other classification places

[G01V 13/00](#) covers the calibration of devices covered by the groups [G01V 1/00](#), [G01V 3/00](#), [G01V 7/00](#), [G01V 9/00](#) and [G01V 11/00](#), i.e. prospecting or detecting using acoustic, seismic, electric, magnetic, gravitational, or optical means.

**G01H 5/00**

**Measuring propagation velocity of ultrasonic, sonic or infrasonic waves{, e.g. of pressure waves}**

**References****Limiting references**

*This place does not cover:*

Measuring temperature using measurement of the velocity of propagation of sound	<a href="#">G01K 11/24</a>
Analysing fluids by measuring propagation velocity or propagation time of acoustic waves	<a href="#">G01N 29/024</a>
Measuring speed of fluids, e.g. of an air-stream	<a href="#">G01P 5/00</a>

**G01H 7/00**

**Measuring reverberation time; {Room acoustic measurements} (measuring absorption of vibrations in a material [G01N](#); modifying acoustic properties to change reverberation time [G10K](#))**

**References****Informative references**

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

Measuring absorption of vibrations in a material	<a href="#">G01N</a>
Arrangements for producing a reverberation or echo sound in fluids	<a href="#">G10K 15/08</a>

**G01H 9/00**

**Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by using radiation-sensitive means, e.g. optical means**

**Definition statement**

*This place covers:*

Measuring vibrations or sonic waves using electromagnetic waves, e.g. light.

**References****Informative references**

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

Measuring force or stress by measuring variations in optical properties of a material when it is stressed	<a href="#">G01L 1/24</a>
Measuring pressure of a fluid by acoustic means	<a href="#">G01L 11/04</a>
Analysing materials using optoacoustic interaction with the material	<a href="#">G01N 29/24</a>
Measuring acceleration, measuring shock by photoelectric pick-up	<a href="#">G01P 15/093</a>
Electro-optic transducers	<a href="#">H04R 23/00</a>

## G01H 11/00

Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties{, e.g. capacitance or reluctance (structural combination of musical instruments with microphones or other pick-up devices [G10H 3/16](#), [G10H 3/18](#), [G10H 3/20](#))}

### Definition statement

*This place covers:*

Measuring by magnetic or electromagnetic means;

Measuring by electric means

### References

#### Informative references

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

Measuring acceleration, deceleration shock with conversion into electric or magnetic variables	<a href="#">G01P 15/08</a>
Burglar alarms actuated by variation in capacitance or inductance or a circuit	<a href="#">G08B 13/26</a>
Structural combination of musical instruments with microphones or other pick-up devices	<a href="#">G10H 3/16</a> , <a href="#">G10H 3/18</a> , <a href="#">G10H 3/20</a>

## G01H 13/00

Measuring resonant frequency

### References

#### Limiting references

*This place does not cover:*

Analysing fluids by measuring frequency or resonance of acoustic waves	<a href="#">G01N 29/036</a>
Analysing solids by measuring frequency or resonance of acoustic waves	<a href="#">G01N 29/12</a>

## G01H 15/00

Measuring mechanical or acoustic impedance

### References

#### Informative references

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

Analysing fluids by measuring acoustic impedance	<a href="#">G01N 29/028</a>
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## G01H 17/00

**Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves, not provided for in the preceding groups {(see provisionally also [G01H 1/00](#))}**

### Definition statement

*This place covers:*

Prediction of vibration patterns.

Chladni techniques.

### References

#### Limiting references

*This place does not cover:*

Measuring characteristics of vibrations in solids by using direct conduction to the detector	<a href="#">G01H 1/00</a>
Measuring characteristics of vibrations by using a detector in a fluid	<a href="#">G01H 3/00</a>
Measuring propagation velocity of ultrasonic, sonic or infrasonic waves	<a href="#">G01H 5/00</a>
Measuring reverberation time	<a href="#">G01H 7/00</a>
Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by using radiation-sensitive means, e.g. optical means	<a href="#">G01H 9/00</a>
Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties,	<a href="#">G01H 11/00</a>
Measuring resonant frequency	<a href="#">G01H 13/00</a>
Measuring mechanical or acoustic impedance	<a href="#">G01H 15/00</a>