Original operating instructions

PMC 46 combilaser

It is essential that the operating instructions are read before the tool is operated for the first time.

Always keep these operating instructions together with the tool.

Ensure that the operating instructions are with the tool when it is given to other persons.

Contents

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 General information</td>
<td>11</td>
</tr>
<tr>
<td>2 Description</td>
<td>12</td>
</tr>
<tr>
<td>3 Accessories</td>
<td>13</td>
</tr>
<tr>
<td>4 Technical data</td>
<td>14</td>
</tr>
<tr>
<td>5 Safety instructions</td>
<td>14</td>
</tr>
<tr>
<td>6 Before use</td>
<td>15</td>
</tr>
<tr>
<td>7 Operation</td>
<td>16</td>
</tr>
<tr>
<td>8 Care and maintenance</td>
<td>18</td>
</tr>
<tr>
<td>9 Troubleshooting</td>
<td>18</td>
</tr>
<tr>
<td>10 Disposal</td>
<td>19</td>
</tr>
<tr>
<td>11 Manufacturer's warranty</td>
<td>19</td>
</tr>
<tr>
<td>12 EC declaration of conformity (original)</td>
<td>20</td>
</tr>
</tbody>
</table>

These numbers refer to the illustrations. You can find the illustrations at the beginning of the operating instructions.

In these operating instructions, the designation “the tool” always refers to the PMC 46 combilaser.

Parts, operating controls and indicators

1. On-button
2. LED
3. Pendulum
4. Removable foot
5. Back of the tool

1 General information

1.1 Safety notices and their meaning

DANGER
Draws attention to imminent danger that will lead to serious bodily injury or fatality.

WARNING
Draws attention to a potentially dangerous situation that could lead to serious personal injury or fatality.

CAUTION
Draws attention to a potentially dangerous situation that could lead to slight personal injury or damage to the equipment or other property.

NOTE
Draws attention to an instruction or other useful information.

1.2 Explanation of the pictograms and other information

Warning signs

General warning

Symbols

Read the operating instructions before use.

Disposal of power tools or appliances together with household waste is not permissible.

KCC-REM-HLT-PMC46
2 Description

2.1 Use of the product as directed

The PMC 46 is a self-leveling combilaser which allows a single person to level, plumb, align and transfer right angles quickly and accurately. The tool projects two lines (horizontal and vertical) and five points (above, below, right, left and line intersection). The lines and line intersection point have a range of approx. 10 m. All other points have a range of approx. 30 m. Range depends on the brightness of ambient light.

The tool is designed mainly for indoor use and is no substitute for a rotating laser.

When used for outdoor applications, care must be taken to ensure that the general conditions are similar to those encountered indoors. Possible applications are:

Marking the position of partition walls (at right angles and in the vertical plane).

Aligning components to be installed or sections of a structure in three axes.

Checking and transferring right angles.

Transferring measuring marks from the floor to the ceiling.

Observe the information printed in the operating instructions concerning operation, care and maintenance.

The tool and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

2.2 Features

The PMC 46 levels itself automatically within a range of approx. 5°.

Self-leveling takes only approx. 3 seconds.

The combilaser gives an “Out of self-leveling range” warning when the self-leveling range is exceeded (the laser beams blink).

The PMC 46 is characterized by its ease of operation and use, its rugged plastic casing and ease of transport due to its compact dimensions and light weight.

The tool can be used together with the PMA 31 laser receiver.

In the normal operating mode, the tool switches itself off after 15 minutes. Sustained operating mode can be activated by pressing and holding the on-switch for four seconds.

2.3 Items supplied with the cardboard box version

<table>
<thead>
<tr>
<th>1</th>
<th>Combi-laser</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Soft pouch</td>
</tr>
<tr>
<td>4</td>
<td>Batteries</td>
</tr>
<tr>
<td>1</td>
<td>Operating instructions</td>
</tr>
<tr>
<td>1</td>
<td>Manufacturer’s certificate</td>
</tr>
</tbody>
</table>
2.4 Items supplied with the toolbox version

1 Combilaser
1 Soft pouch
4 Batteries
1 Operating instructions
1 Universal adapter
1 Manufacturer’s certificate
1 Tripod

2.5 Information displayed during operation

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The LED doesn’t light.</td>
<td>The tool is switched off.</td>
</tr>
<tr>
<td>The LED doesn’t light.</td>
<td>The batteries are exhausted.</td>
</tr>
<tr>
<td>The LED doesn’t light.</td>
<td>The batteries are inserted incorrectly.</td>
</tr>
<tr>
<td>The LED lights constantly.</td>
<td>The laser beam is switched on. The tool is in operation.</td>
</tr>
<tr>
<td>The LED blinks twice every 10 seconds.</td>
<td>The batteries are almost exhausted.</td>
</tr>
<tr>
<td>The LED blinks.</td>
<td>The temperature of the tool is above 50°C (122°F) or below -10°C (14°F) (the laser beam does not light).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laser beam</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The laser beam blinks twice every 10 seconds.</td>
<td>The batteries are almost exhausted.</td>
</tr>
<tr>
<td>The laser beam blinks rapidly.</td>
<td>The tool cannot level itself (outside the 5° self-leveling range).</td>
</tr>
<tr>
<td>The laser beam blinks every 2 seconds.</td>
<td>The tool is unable to level itself automatically (or is set to “Inclined plane” operating mode).</td>
</tr>
</tbody>
</table>

3 Accessories

<table>
<thead>
<tr>
<th>Designation</th>
<th>Short designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripod</td>
<td>PMA 20</td>
<td></td>
</tr>
<tr>
<td>Target plate</td>
<td>PMA 54/55</td>
<td></td>
</tr>
<tr>
<td>Target plate</td>
<td>PRA 50/51</td>
<td></td>
</tr>
<tr>
<td>Laser receiver</td>
<td>PMA 31</td>
<td></td>
</tr>
<tr>
<td>Magnetic bracket</td>
<td>PMA 74</td>
<td></td>
</tr>
<tr>
<td>Telescopic brace</td>
<td>PUA 10</td>
<td></td>
</tr>
<tr>
<td>Frame clamp</td>
<td>PMA 25</td>
<td></td>
</tr>
<tr>
<td>Universal adapter</td>
<td>PMA 78</td>
<td></td>
</tr>
<tr>
<td>Hilti toolbox</td>
<td>PMC 46</td>
<td></td>
</tr>
<tr>
<td>Laser visibility glasses</td>
<td>PUA 60</td>
<td>The laser visibility glasses are not protective glasses and thus do not protect the eyes from laser beams. As the laser visibility glasses restrict color vision, they should be worn only when working with this tool. Do not wear the laser visibility glasses while driving a vehicle on a public road.</td>
</tr>
</tbody>
</table>
4 Technical data
Right of technical changes reserved.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of the points</td>
<td>30 m (98 ft)</td>
</tr>
<tr>
<td>Range of the lines and intersection point</td>
<td>10 m (33 ft)</td>
</tr>
<tr>
<td>Accuracy¹</td>
<td>±2 mm at 10 m (±0.08 in at 33 ft)</td>
</tr>
<tr>
<td>Self-leveling time</td>
<td>3 s</td>
</tr>
<tr>
<td>Laser class</td>
<td>Class 2, visible, 635 nm ±10 nm (IEC/EN 60825-1:2007); Class II (CFR 21 §1040 (FDA))</td>
</tr>
<tr>
<td>Beam diameter</td>
<td>Distance 5 m: &lt;4 mm</td>
</tr>
<tr>
<td></td>
<td>Distance 20 m: &lt;16 mm</td>
</tr>
<tr>
<td>Line width</td>
<td>Distance 5 m: &lt; 2.2 mm</td>
</tr>
<tr>
<td>Self-leveling range</td>
<td>±5° (typical)</td>
</tr>
<tr>
<td>Automatic power-off</td>
<td>Activated after: 15 min</td>
</tr>
<tr>
<td>Operating status indicator</td>
<td>LED and laser beams</td>
</tr>
<tr>
<td>Power supply</td>
<td>AA-size batteries, Alkaline batteries: 4</td>
</tr>
<tr>
<td>Battery life (2 points and 1 line)</td>
<td>Alkaline battery 2,500 mAh, Temperature +25°C (+77°F); 20 h (Typical)</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>Min. -10°C / Max. +50°C (+14 to 122°F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Min. -25°C / Max. +63°C (-13 to 145°F)</td>
</tr>
<tr>
<td>Dust and water spray protection (except battery compartment)</td>
<td>IP 54 as per IEC 60529</td>
</tr>
<tr>
<td>Tripod thread (tool)</td>
<td>UNC¹/₄&quot;</td>
</tr>
<tr>
<td>Tripod thread (foot)</td>
<td>BSW 5/8&quot; UNC¹/₄&quot;</td>
</tr>
<tr>
<td>Weight with the foot but without batteries</td>
<td>0.413 kg (0.911 lbs)</td>
</tr>
<tr>
<td>Dimensions without the foot</td>
<td>140 mm X 73 mm X 107 mm</td>
</tr>
<tr>
<td></td>
<td>96 mm X 65 mm X 107 mm</td>
</tr>
</tbody>
</table>

¹ Influences such as particularly high temperature fluctuations, dampness, shock, dropping, etc. can affect accuracy. Unless stated otherwise, the tool was adjusted or calibrated under standard ambient conditions (MIL-STD-810F).

5 Safety instructions
In addition to the information relevant to safety given in each of the sections of these operating instructions, the following points must be strictly observed at all times.

5.1 General safety instructions
a) Check the accuracy of the tool before using it to take measurements.
b) The tool and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.
c) To avoid the risk of injury, use only genuine Hilti accessories and additional equipment.
d) Modification of the tool is not permissible.
e) Observe the information printed in the operating instructions concerning operation, care and maintenance.
f) Do not render safety devices ineffective and do not remove information and warning notices.
g) Keep laser tools out of reach of children.

i) Take the influences of the surrounding area into account. Do not expose the tool to rain or snow and do not use it in damp or wet conditions. Do not use the tool where there is a risk of fire or explosion.

j) Check the condition of the tool before use. If the tool is found to be damaged, have it repaired at a Hilti service center.

k) The user must check the accuracy of the tool after it has been dropped or subjected to other mechanical stresses.

l) When the tool is brought into a warm environment from very cold conditions, or vice-versa, allow it to become acclimatized before use.

m) If mounting on an adapter, check that the tool is screwed on securely.

n) Keep the laser exit aperture clean to avoid measurement errors.

o) Although the tool is designed for the tough conditions of jobsite use, as with other optical and elec-
Electronic instruments (e.g. binoculars, spectacles, cameras) should be treated with care.

- Although the tool is protected to prevent the entry of dampness, it should be wiped dry each time before being put away in its transport container.
- Check the accuracy of the measurements several times during use of the tool.

5.2 Proper organization of the work area

a) Secure the area in which you are working and take care to avoid directing the beam towards other persons or towards yourself when setting up the tool.
b) Avoid unfavorable body positions when working from ladders. Make sure you work from a safe stance and stay in balance at all times.
c) Measurements taken through panes of glass or other objects may be inaccurate.
d) Ensure that the tool is set up on a steady, level surface (not subject to vibration).
e) Use the tool only within its specified limits.
f) If several laser tools are used in the same working area, care must be taken to avoid confusing the beams.
g) Magnetic fields may affect the accuracy of the tool. It must thus be kept away from magnetic objects. The tool is not affected by the Hilti universal adapter.
h) When working with the receiver, it must be held exactly at right angles to the laser beam.
i) Do not use the tool in the proximity of medical instruments.

5.3 Electromagnetic compatibility

**NOTE**
Only for Korea: This device is suitable for the electromagnetic radiation encountered in residential environments (Class B). It is intended mainly for use in residential environments but may also be used in other environments.

Although the tool complies with the strict requirements of the applicable directives, Hilti cannot entirely rule out the possibility of interference with other devices (e.g. aircraft navigation equipment).

5.4 Laser classification for laser class 2 / class II appliances

Depending on the version purchased, the tool complies with Laser Class 2 in accordance with IEC60825-1:2007 / EN60825-1:2007 and Class II in accordance with CFR 21 § 1040 (FDA). This tool may be used without need for further protective measures. The eyelid closure reflex protects the eyes when a person looks into the beam unintentionally for a brief moment. This eyelid closure reflex, however, may be negatively affected by medicines, alcohol or drugs. Nevertheless, as with the sun, one should not look directly into sources of bright light. Do not direct the laser beam toward persons.

5.5 Electrical

a) Insulate or remove the batteries before shipping the tool.
b) To avoid pollution of the environment, the tool must be disposed of in accordance with the currently applicable national regulations. Consult the manufacturer if you are unsure of how to proceed.
c) Keep the batteries out of reach of children.
d) Do not allow the batteries to overheat and do not expose them to fire. The batteries may explode or release toxic substances.
e) Do not charge the batteries.
f) Do not solder the batteries into the tool.
g) Do not discharge the batteries by short circuiting as this may cause them to overheat and present a risk of personal injury (burns).
h) Do not attempt to open the batteries and do not subject them to excessive mechanical stress.
i) Do not mix old and new batteries. Do not mix batteries of different makes or types.

5.6 Liquids

Under abusive conditions, liquid may leak from the battery. Avoid contact. If contact accidentally occurs, flush with water. In the event of the liquid coming into contact with the eyes, rinse the eyes with plenty of water and consult a doctor. Liquid ejected from the battery may cause irritation or burns.

6 Before use

6.1 Inserting the batteries

**DANGER**

- Use only new batteries.

1. Remove the foot from the tool.

2. Open the battery compartment.
3. Remove the batteries from the packaging and insert them in the tool. **NOTE** Only batteries recommended by Hilti may be used to power the tool.
4. Check that the battery terminals are positioned correctly as shown on the underside of the unit.
5. Close the battery compartment cover. Check that the catch engages properly.
6. Refit the foot to the tool.
7 Operation

7.1 Operation

7.1.1 Switching the laser beams on
Press the on-button once.

7.1.2 Switching the tool / laser beams off
Press and hold the on-button until the laser beam is no longer visible and the LED no longer lights.

NOTE
The tool switches itself off automatically after approx. 15 min.

7.1.3 Deactivating the automatic power-off feature
Press and hold the on-button for approx. 4 sec. until the laser beam blinks three times as confirmation.

NOTE
The tool will be switched off when the on-button is pressed or when the batteries are exhausted.

7.1.4 Inclined line function
1. Lay the tool on its back.
   The tool does not level itself automatically.
   The tool blinks every two seconds.

7.1.5 Using the tool with the PMA 31 laser receiver
For further information, please refer to the PMA 31 operating instructions.

7.2 Examples of applications

7.2.1 Transferring heights

7.2.2 Setting out drywall track for a partition wall

7.2.3 Aligning pipes vertically

7.2.4 Aligning radiators

7.2.5 Aligning door and window frames

7.2.6 Marking out the position of light fittings

7.3 Checking

7.3.1 Checking the plumb point

1. Make a mark on the floor (a cross) in a high room (e.g. in a stairwell or hallway with a height of 5-10 m).
2. Place the tool on a smooth, level (horizontal) surface.
3. Switch the tool on.
4. Position the tool with the lower beam on the center of the cross.
5. Mark the position of the vertical beam on the ceiling.
   Attach a piece of paper to the ceiling before making the mark.
6. Pivot the tool through 90°.
   NOTE The lower plumb beam must remain on the center of the cross.
7. Mark the position of the vertical beam on the ceiling.
8. Repeat the procedure after pivoting the tool through 180° and 270°.

NOTE
The resulting 4 marks form a circle in which the intersection of the diagonals d1 (1 – 3) and d2 (2 – 4) marks the exact center of the plumb point.
9. Calculate the accuracy as described in section 7.3.1.1.

7.3.1.1 Calculation of accuracy

\[ R = \frac{10}{RH \ [m]} \times \frac{(d1 + d2) \ [mm]}{4} \quad (1) \]

\[ R = \frac{30}{RH \ [m]} \times \frac{(d1 + d2) \ [inch]}{4} \quad (2) \]

The result (R) provided by this formula (RH = room height) refers to the tool’s accuracy “in mm at 10 m” (formula (1)). This result (R) should be within the specification for the tool (3 mm at 10 m).

7.3.2 Checking leveling of the forward beam

1. Place the tool on a smooth, level surface approx. 20 cm from the wall (A) with the laser beam directed toward the wall (A).
2. Mark the point of intersection of the laser lines on the wall (A) with a cross.
3. Pivot the tool through 180° and mark the point of intersection of the laser lines on the opposite wall (B) with a cross.

NOTE

To achieve maximum accuracy, project the line onto a vertical, even surface. When doing so, set up the tool at 90° to the surface.

8 Operation

7.1 Operation

7.1.1 Switching the laser beams on
Press the on-button once.

7.1.2 Switching the tool / laser beams off
Press and hold the on-button until the laser beam is no longer visible and the LED no longer lights.

NOTE
The tool switches itself off automatically after approx. 15 min.

7.1.3 Deactivating the automatic power-off feature
Press and hold the on-button for approx. 4 sec. until the laser beam blinks three times as confirmation.

NOTE
The tool will be switched off when the on-button is pressed or when the batteries are exhausted.

7.1.4 Inclined line function
1. Lay the tool on its back.
   The tool does not level itself automatically.
   The tool blinks every two seconds.

7.1.5 Using the tool with the PMA 31 laser receiver
For further information, please refer to the PMA 31 operating instructions.

7.2 Examples of applications

7.2.1 Transferring heights

7.2.2 Setting out drywall track for a partition wall

7.2.3 Aligning pipes vertically

7.2.4 Aligning radiators

7.2.5 Aligning door and window frames

7.2.6 Marking out the position of light fittings

7.3 Checking

7.3.1 Checking the plumb point

1. Make a mark on the floor (a cross) in a high room (e.g. in a stairwell or hallway with a height of 5-10 m).
2. Place the tool on a smooth, level (horizontal) surface.
3. Switch the tool on.
4. Position the tool with the lower beam on the center of the cross.
5. Mark the position of the vertical beam on the ceiling.
   Attach a piece of paper to the ceiling before making the mark.
6. Pivot the tool through 90°.
   NOTE The lower plumb beam must remain on the center of the cross.
7. Mark the position of the vertical beam on the ceiling.
8. Repeat the procedure after pivoting the tool through 180° and 270°.

NOTE
The resulting 4 marks form a circle in which the intersection of the diagonals d1 (1 – 3) and d2 (2 – 4) marks the exact center of the plumb point.
9. Calculate the accuracy as described in section 7.3.1.1.

7.3.1.1 Calculation of accuracy

\[ R = \frac{10}{RH \ [m]} \times \frac{(d1 + d2) \ [mm]}{4} \quad (1) \]

\[ R = \frac{30}{RH \ [m]} \times \frac{(d1 + d2) \ [inch]}{4} \quad (2) \]

The result (R) provided by this formula (RH = room height) refers to the tool’s accuracy “in mm at 10 m” (formula (1)). This result (R) should be within the specification for the tool (3 mm at 10 m).

7.3.2 Checking leveling of the forward beam

1. Place the tool on a smooth, level surface approx. 20 cm from the wall (A) with the laser beam directed toward the wall (A).
2. Mark the point of intersection of the laser lines on the wall (A) with a cross.
3. Pivot the tool through 180° and mark the point of intersection of the laser lines on the opposite wall (B) with a cross.

NOTE

To achieve maximum accuracy, project the line onto a vertical, even surface. When doing so, set up the tool at 90° to the surface.
4. Place the tool on an even, level surface approx. 20 cm from the wall (B) with the laser beam directed toward the wall (B).
5. Mark the point of intersection of the laser lines on that wall (B) with a cross.
6. Pivot the tool through 180° and mark the point of intersection of the laser lines on the opposite wall (A) with a cross.
7. Measure the distances d1 between 1 and 4 and d2 between 2 and 3.
8. Mark the mid points of d1 and d2.
   If the reference points 1 and 3 are located on different sides of the mid point, then subtract d2 from d1.
   If the reference points 1 and 3 are located on the same side of the mid point, then add d1 and d2 together.
9. Divide the result by twice the length of the room (room length x 2).
   The maximum permissible error is 3 mm at 10 m.

7.3.3 Checking leveling of the lateral beams
Repeat the procedure and calculate the accuracy of each of the two perpendicular beams as described at 7.3.2.

7.3.4 Checking perpendicularity (horizontal)
1. Position the tool with the lower plumb beam on the center of a reference cross in the middle of a room at a distance of approx. 5 meters from the walls so that the center of the vertical laser line lies exactly on the vertical line of the first target plate (a).
2. Attach a second target plate or sheet of paper (b) to the wall at the half-way position (as shown in the illustration). Mark the mid point (d1) of the right-hand perpendicular beam.
3. Pivot the tool clockwise through exactly 90° (as seen from above). The lower plumb beam must remain on the center of the reference cross and the center of the left-hand perpendicular beam must then lie exactly on the vertical line of target plate (a).
4. Mark the center point (d2) of the right-hand perpendicular laser beam on target plate (c).
5. Mark the mid point (d3) of the point of intersection of the laser lines on target plate (b) or the sheet of paper (from step 7).
   NOTE The horizontal distance between d1 and d3 must be no greater than 3 mm at a working distance of 5 m.
6. Pivot the tool clockwise through exactly 180° (as seen from above). The lower plumb beam must remain in the center of the reference cross and the center of the right-hand perpendicular beam must then lie exactly on the vertical line of target plate (a).
7. Then mark the center point (d2) of the left-hand perpendicular laser beam on target plate (c).
   NOTE The horizontal distance between d2 and d4 must be no greater than 3 mm at a working distance of 5 m.
   NOTE If d3 is to the right of d1, the sum of the horizontal distances d1-d3 and d2-d4 must be no greater than 3 mm at a working distance of 5 m.
   NOTE If d3 is to the left of d1, the difference between the horizontal distances d1-d3 and d2-d4 must be no greater than 3 mm at a working distance of 5 m.

7.3.5 Checking the horizontal lines for curvature
1. Place the tool at the edge of a room with a length of at least 10 m.
   NOTE The floor surface must be smooth and level.
2. Switch on all laser beams.
3. Set up a target plate at a distance of at least 10 m from the tool, so that the point of intersection of the laser lines lies in the center of the target plate (d0) and the vertical line on the target plate runs exactly through the middle of the vertical laser line.
4. Mark the mid point of the lower plumb beam on the floor (reference cross).
5. Pivot the tool clockwise through 45° (as seen from above). The lower plumb beam must remain on the center of the reference cross.
6. Then mark the point (d1) on the target plate where the horizontal laser line strikes the vertical line on the target plate.
7. Pivot the tool counterclockwise through 90°. The lower plumb beam must remain on the center of the reference cross.
8. Then mark the point (d2) on the target plate where the horizontal laser line strikes the vertical line on the target plate.
9. Measure the following vertical distances: d0-d1, d0-d2 and d1-d2.
   NOTE The greatest measured vertical distance must be no more than 5 mm at a working distance of 10 m.

7.3.6 Checking the vertical lines
1. Position the tool at a height of 2 meters.
2. Switch the tool on.
3. Position the first target plate T1 (vertical) at a distance of 2.5 meters from the tool at the same height (2 meters), so that the vertical laser beam strikes the plate. Mark this position.
4. Then place the second target plate T2 at a position 2 meters below the first target plate, so that the vertical laser beam strikes the plate. Mark this position.

5. Mark position 2 at the opposite side of the test setup (mirror image) on the laser line on the floor at a distance of 5 meters from the tool.

6. Now place the tool on the floor on the mark for position 2 which you have just made. Direct the laser beam toward the target plates T1 and T2 so that it strikes the plates close to their center lines.

7. Read the distances D1 and D2 from each target plate (distance of the laser line from the center of the target plate) and calculate the difference (D = D1 - D2).

NOTE Take care to ensure that the target plates are parallel to each other and that they are in the same vertical plane. (Horizontal alignment may result in measurement error).

If the difference D is greater than 3 mm, the tool must be returned to a Hilti repair center for adjustment.

### 8 Care and maintenance

#### 8.1 Cleaning and drying

1. Blow dust off the glass.

2. Do not touch the glass with the fingers.

3. Use only a clean, soft cloth for cleaning. If necessary, moisten the cloth slightly with pure alcohol or a little water.

NOTE Do not use any other liquids as these may damage the plastic components.

4. Observe the temperature limits when storing your equipment. This is particularly important in winter / summer if the equipment is kept inside a motor vehicle (-25°C to +63°C / -13°F to 145°F).

#### 8.2 Storage

Remove the tool from its case if it has become wet. The tool, its carrying case and accessories should be cleaned and dried (at maximum 63°C / 145°F). Repack the items only once they have dried completely and then store them in a dry place.

Check the accuracy of the equipment before it is used after a long period of storage or transportation. Remove the batteries from the tool before storing it for a long period. Leaking batteries may damage the tool.

#### 8.3 Transport

Use the Hilti toolbox or packaging of equivalent quality for transporting or shipping your equipment.

DANGER Always remove the batteries before shipping the tool.

#### 8.4 Hilti calibration service

We recommend that the tool is checked by the Hilti calibration service at regular intervals in order to verify its reliability in accordance with standards and legal requirements. Use can be made of the Hilti calibration service at any time, but checking at least once a year is recommended.

The calibration service provides confirmation that the tool is in conformance, on the day it is tested, with the specifications given in the operating instructions.

The tool will be readjusted if deviations from the manufacturer’s specification are found. After checking and adjustment, a calibration sticker applied to the tool and a calibration certificate provide written verification that the tool operates in accordance with the manufacturer’s specification.

Calibration certificates are always required by companies certified according to ISO 900x.

Your local Hilti Center or representative will be pleased to provide further information.

### 9 Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>The tool can’t be switched on.</td>
<td>The battery is exhausted.</td>
<td>Replace the battery.</td>
</tr>
<tr>
<td></td>
<td>The battery is inserted the wrong way round (incorrect polarity).</td>
<td>Insert the battery correctly.</td>
</tr>
<tr>
<td></td>
<td>The battery compartment is not closed.</td>
<td>Close the battery compartment.</td>
</tr>
<tr>
<td></td>
<td>The tool or selector switch is faulty.</td>
<td>If necessary, have the power tool repaired by Hilti Service.</td>
</tr>
<tr>
<td>Individual laser beams don’t function.</td>
<td>The laser source or laser control unit is faulty.</td>
<td>If necessary, have the power tool repaired by Hilti Service.</td>
</tr>
<tr>
<td>The tool can be switched on but no laser beam is visible.</td>
<td>The laser source or laser control unit is faulty.</td>
<td>If necessary, have the power tool repaired by Hilti Service.</td>
</tr>
<tr>
<td></td>
<td>The temperature is too high or too low.</td>
<td>Allow the tool to cool down or warm up.</td>
</tr>
</tbody>
</table>
### Fault Possible cause Remedy

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic leveling doesn't function.</td>
<td>The tool is set up on an excessively inclined surface.</td>
<td>Set up the tool on the level.</td>
</tr>
<tr>
<td></td>
<td>The tilt sensor is faulty.</td>
<td>If necessary, have the power tool repaired by Hilti Service.</td>
</tr>
</tbody>
</table>

### 10 Disposal

**WARNING**

Improper disposal of the equipment may have serious consequences:

The burning of plastic components generates toxic fumes which may present a health hazard.

Batteries may explode if damaged or exposed to very high temperatures, causing poisoning, burns, acid burns or environmental pollution.

Careless disposal may permit unauthorized and improper use of the equipment. This may result in serious personal injury, injury to third parties and pollution of the environment.

Most of the materials from which Hilti tools or appliances are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, Hilti has already made arrangements for taking back old tools or appliances for recycling. Ask Hilti Customer Service or your Hilti representative for further information.

For EC countries only

Do not dispose of electronic measuring tools or appliances together with household waste.

In observance of the European Directive on waste electrical and electronic equipment and its implementation in accordance with national law, electrical appliances that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

Dispose of the batteries in accordance with national regulations.

### 11 Manufacturer’s warranty

Please contact your local Hilti representative if you have questions about the warranty conditions.
12 EC declaration of conformity (original)

Designation: Combilaser
Type: PMC 46
Year of design: 2009

We declare, on our sole responsibility, that this product complies with the following directives and standards:

Hilti Corporation, Feldkircherstrasse 100, FL-9494 Schaan

Paolo Lucolini
Head of BA Quality and Process Management
Business Area Electric Tools & Accessories
06/2015

Edward Przybyłowicz
Head of BU Measuring Systems
BU Measuring Systems
06/2015

Technical documentation filed at:
Hilti Entwicklungsgesellschaft mbH
Zulassung Elektrowerkzeuge
Hilistrasse 6
86916 Kaufering
Deutschland