

Starrett 98 Levels - Frequently Asked Questions



What is the first thing I should do before using my 98 Level?

Before using any level, it is advisable to perform a reversing inspection, to do this place the tool on a reasonably flat /level surface and check the bubble position. Now being careful, pick up the level and spin it 180 degrees and set it back down in the same area. And again, after waiting a few seconds observe the bubbles position, it should be the same as originally observed. If not, the tool is equipped with two adjusting nuts, by lowering or raising these “nuts “you can adjust the bubble so no matter what orientation the bubble is the same. When making adjustments never move the bubble by more than half the required distance.

Any restrictions on level length?

When using a level, it is very important that the level be shorter than the section being inspected. The base is not flat. If the entire length is not in contact with the workpiece, you may be in error.

Is the base of the level flat?

No, the base of the level is actually concave having the center higher than the ends. If you draw the level left and right on a surface plate and turn the tool over, you will note it “shines” from the ends in about an inch and a half showing the areas of actual contact.



Why is the base not flat?

Like the issue above when the cast iron level heats up the metal expands. If the base was not compensated for this condition, the center would “bow” downwards and the level end would rise so the tool could actually spin on its center.

What is the liquid in the 98 vials?

The 98 series Starrett vials are filled with isopropyl alcohol.

What is the temperature range of the level?

Recommended operating temperature for the 98 series is 40 degrees Fahrenheit to 120-degree Fahrenheit. The survival temperature range is: -40 to 70°C

What happens when the temperatures are lower than 40 degrees?

As the temperature drops, the alcohol in the tool contracts and the tools “bubble grows”

What happens when the temperature exceeds 120 degrees?

As the temperature rises, the liquid expands and the “bubble” shrinks

What is the vials accuracy?

The 98-4 inch long tool has an accuracy of .015 per foot per grad, longer 98 series tools have a vial accuracy of .005 per foot.

How big should the size of the bubble in the main vial be?

As a standard rule, the bubble should be within the major grad lines $+0/-1/64$ ” at 68-72 degrees F. Due to the accuracy of some very sensitive vials, the (-) tolerance may vary.

I have two levels and they do not read the same. Why not?

Check the tools base. Are the points of contact the same length? Is there any evidence of damage? (Run your hand down the bottom and feel for imperfections that require stoning to remove)

Can the level be used upside down?

No. Level vials are available in two ways: Pocketed or Bent. The 98 uses an internally pocketed style where there is an actual ground “pocket” in the center of the vial for the air bubble to solidify and build a single bubble. If the tool is reversed, the pocket is not provided.

The 98 level has a groove machined lengthwise in its base what is that for?

The 98 is designed to be used on flat surfaces or round (like a Pipe). The two surfaces are parallel. So, in theory, if placed on flat or round the tool should read correctly. But if the tool is to be guaranteed, it is best to perform the reversing test (spin it 180 degrees and set it back down in the same area), as the base might be worn affecting the original parallelism.



Does Starrett offer a more accurate level than the 98 series?

In some instances, a more accurate level is required. Starrett offers our 199 Master precision level. This tool is 15 inches long and 1 5/8-inch-wide by 3 inches tall. Constructed of fine grade cast iron with a Bakelite cover to inhibit the transmission of heat when carried about. The base on this tool is flat with a hand scraped finish and the vial has an accuracy of each graduation being equal to .0005 per foot.

Can I repair the main vial “in the field”?

This is a complicated exercise if you do not have the correct special tools. Example: your first task is to remove one of the end plugs, these plugs are pressed in place and it is important not to place the tube assembly in a bench vise and pull them out with a set of pliers. Without the proper tools you risk crushing the tube so the outer tube will no longer swing to protect the vial. If you want to attempt this contact Starrett at 978-249-3551 and tech assistance is available.

What material are the vials set in?

US gypsum #1 molding plaster is used for setting vials.

Do I need to send the entire level back to Starrett for repair?

If the tool becomes damaged and requires attention there are options available. If the damage is in the vial area you can purchase a new “Tube and Plug assembly” this is a completely new vial tube with its rotating cover that can be installed. NOTE: you will need to adjust the bubble by performing the reverse test detailed above. Another option is to return only this tube and plug (which will require the reverse procedure when returned) or send the entire unit back. Starrett mailing address is L.S. Starrett, 121 Crescent Street, Athol, MA 01331

How do I obtain replacement parts for my level?

Parts can be obtained by calling the Starrett company at 978-249-3551 and ask for the parts department or by going to the Starrett web site

Model #	98-4	98-6	98-12	98-18
Graduation	0.015”	0.005”	0.005”	0.005”
Base Length	4”	6”	12”	18”
Base With	7/8”	1-3/16”	1-7/16”	1-11/16”
Tube and Plug Hole Spacing	2.975”	4.5”	6”	7.5”
Weight	0.4 lbs	0.83 lbs	3.3 lbs	5.2 lbs