

WATERPROOF BINOCULARS

Please be aware that it is not possible to make any binocular fully waterproof for an unlimited period of time, this is because the water seals will break down over time. Exactly how long a binocular can remain waterproof depends on a number of factors. If the binocular is submerged in water then water pressure will act against the seals, the deeper and longer it is in water, then the faster the seals will break down and allow water inside. Even in normal use, movement, air quality and environment and changes in temperature will all act to break down the integrity of the water seals and after a period of time waterproofing will be lost even if the binocular as never been in water.

How long before the waterproofing is lost will vary from model to model as more expensive models with higher grades of waterproofing will retain waterproofing for longer than a basic WP model. Without knowing the environment it is being used in it is difficult to give a precise answer, but in typical conditions we would expect a basic model WP binocular to retain waterproofing for over a year though this would be reduced if the binocular was used excessively or used in more extreme conditions. Once submerged in water, then water pressure will act more quickly to break down the water seals. A basic WP model, so long as the water seals are still intact, should be able to withstand submersion to 20cm-30cm for a few seconds, long enough to retrieve the binocular if it is dipped in water. More expensive models will withstand longer and deeper in water. A binocular built to military waterproof specification would typically withstand 20-30cm for 10-15 minutes.

Exclusions to the guarantee

Because of the above, waterproofing is not covered for under any extended time guarantee. Waterproofing is only covered under guarantee if, after investigating the use the binocular has been subjected to, we feel that the integrity of the water seals should not have failed in the time since the binocular was made. If the binocular is required for a specific use and long term waterproofing is essential, then you should contact us or your dealer to discuss the most suitable model before purchase.

Some waterproof models are also sealed with a dry gas inside, usually nitrogen, which reduces misting of the internal lens elements in damp conditions and extremes of temperature. Eventually this gas inside will slowly leak out even under normal use, it can be recharged but this is not covered under any guarantee or warranty as loss of gas this does not stop the binocular working.

Models described as "water resistant" or "weatherproof" are only designed to withstand light water spray on the body and will not withstand any submersion in water

Also please note: - Most binoculars will not float; however, you can attach a floatation strap which will hold the binocular just a few cm underwater. A brightly coloured strap will help you to locate the binocular quickly.

For models with a built in compass.

Some waterproof binoculars include a built in compass which is a useful navigation aid however there are a few words of caution in their use.

Usually compasses only operate correctly when held flat. This is due to the design of a magnetic compass requiring a damped rotating indicator but can be a little disconcerting when reading an in-view compass which apparently seems to stick when the binocular is pointed up or down. It's just a matter of getting used to its operation – if your subject involves looking up or down; level your binocular while keeping it pointing in the same direction to take your compass reading.

Be aware of **compass errors**. Even the best and most expensive instruments will give false readings in some situations. There are two problems – Magnetic Variation and Deviation.

Variation arises because compasses read the magnetic North Pole of the earth, which is over 600 miles from the true North Pole, this error is compounded because the earth's magnetic field is not uniform. Good navigation charts give compass variances; however, keep your charts up to date because the earth's magnetic field is always changing.

Deviation is the influence of the immediate surroundings on the reading of the compass.

The compass uses magnetism, so metallic objects nearby can seriously affect the reading, as can anything magnetic which includes magnetic field created by flowing electricity. In practice this means that if you try to use the compass in a building or near anything electrical or metal the reading will deviate. It is also worth bearing in mind that there can be differences in the amount of deviation from one design of compass to another.

Usually marine type binoculars with a built in compass have some way of illuminating the display. This is often provided by a window on the top plate which allows light inside. Do not obstruct the window.

Many also have a built in light to allow the compass to be seen at night.

The night illuminator will usually have a switch on the top plate

Please take care NOT to press down on the illumination window

Illuminating the compass



Range finding



The scale is marked in a measure called MIL's

Each numbered marker in the view is 10 mil

The tank in our picture lies between marker 4 on the left and 3 on the right,

7 marker points = 70mil

Whatever unit is used, the size of the subject is the same unit as used for the distance. If metres are used for the size of the subject, range is calculated in metres, if the size is in feet, then the range is in feet too.

Size can be calculated if range is known.
 $Size = Range \times Mil\ width / 1000$

To calculate range, use the formula:-

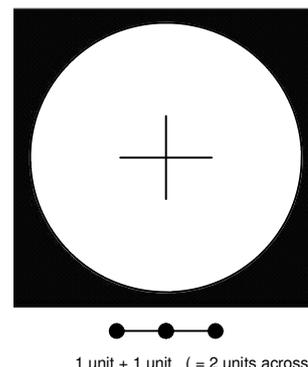
Target width or size _____ X 1000 = Range

Some military and marine models have range finding scales in view. These can be used to find the approximate range if you know the actual size of the subject you are looking at. Navigation charts include the height of lighthouses, and the size of most military targets is already known. The system works equally well with any object if you know its size. Some binoculars have a built in scale which allows quicker calculation.

Crosshairs

Some marine binoculars are fitted with a "cross" marked in the centre instead of the mil scale (or sometimes as well as the mil scale.) The purpose of this is to quickly locate the centre of view to aim the Compass. Removing some of the scale markings from the view leaves a clearer area for viewing.

Often, so the range finder calculation can still be performed, each arm of the cross measures 1 marker point unit (10mil) or 2 marker point units (20mil) across the full width or height of the cross.



ALWAYS USE BINOCULAR RANGE FINDING and DIRECTION FINDING FOR APPROXIMATE REFERENCE ONLY. NEVER RELY ON THIS AS YOUR ONLY MEANS OF NAVIGATION