

DEFINITIONS OF BINOCULAR TERMS:

Magnification: Binoculars are described using two numbers. Most marine binoculars are 7x50. The first number, in this case, seven (7), indicates magnification (power), and the second number, fifty (50), is the objective lens diameter in millimeters. This power which makes things appear seven times closer than they really are is generally accepted to be the highest practicable power for use on the deck of a moving boat.

Eye relief: The maximum distance between the surface of the eyepiece lens and your eye at which you can still discern the full field of view is called eye relief. Most binoculars have a standard eye relief distance of 9mm to 12mm. This is long enough unless you wear eyeglasses. All our binoculars feature longer eye relief, from 15mm to 23mm, which benefits people who wear eyeglasses. It is also an advantage for those who don't wear glasses so they don't have to press hard against the eyecups to see the whole field of view.

Exit pupil: The exit pupil is the circle of light you see when holding binoculars about 6 inches away from your eyes and looking at the surface of the eye pieces. The larger the exit pupil, the brighter the image obtained will be. Having a large exit pupil is advantageous under low light conditions and at night. The exit pupil is a measurement that can be calculated by dividing the diameter of the objective lens by the magnification. Hence, using 7x50 binoculars as an example, the exit pupil measurement is: 50 divided by 7 = 7.14.

Purge gas: For improved light transmission and to prevent fogging, moisture, and leakage, binoculars are filled with an inert gas. Both Argon and Nitrogen are used in our binoculars. Dry Nitrogen is the standard gas used in the industry to prevent fogging. Argon is better because it does not react with the binocular internal parts.

Field of view: The size of the area that can be seen while looking through a pair of binoculars is referred to as the "field of view". Field of view can be expressed as an angle or a distance that can be observed at 1000 yards. A larger field of view translates to a larger area seen through the binoculars.

Focus:

Center Focus: The center focus system of our Sport BN10 and 637 binoculars allows you to change focus quickly between objects near and far by turning the center focus wheel. To focus using center focus system:

A. Close your right eye and look through the left side of the binoculars. Focus by turning the center focus wheel until the image is clear.

B. Close your left eye and look only through the right side of the binoculars and turn the right eyepiece focusing ring until the image is clear.

C. Now, your binoculars should be adjusted for your eyes. Focusing for both far and near objects can be made by simply turning the center focus wheel.

Individual Focus: The advantage of individual focus binoculars is that you can pre-focus the binoculars allowing you to see objects in low light without further adjustments for distances of 40 yards to infinity. To focus using individual focus system, close one eye and rotate the eyepiece adapter ring until the image is sharp, then repeat for the other side.

Lens Coatings: Binoculars have a sophisticated combination of lenses and glass surfaces both inside and outside the housing. To maintain brightness, sharpness and image contrast, lens coatings are applied using thin layers of chemicals. Our binoculars use two coating options that offer the best light transmission efficiency available.

Fully Coated (FC) all air-to-glass surfaces have been coated with a single chemical layer. Fully coated lenses offer very good light transmission.

Fully Multi-Coated (FMC) all air-to-glass surfaces have received multiple coatings. Fully multicoated lenses give the best light transmission and brightest images.

Compass: Built-in magnetic compasses, which appear superimposed near the image you see through the lens, let you take compass bearings of an object. This is valuable to determine your location relative to other objects.

Reticle: Built-in range-finding reticle allows you to calculate the distance from an object of a known height. Combined with the bearing, this will determine your position.

Prism: To invert and magnify an upside-down image, we use two types of prism systems for the best quality optics, the porro prism and the roof prism. By design, roof prisms are more compact and lightweight than porro prisms. Porro prisms offer superior optical performance, but the roof prism used in the Apache is coated with an anti-phase shift coating which is equal in quality to the porro prism.

The glass type used in Weems Binoculars is the best available - BAK4, a barium crown glass, a fine glass with high density, that eliminates internal light scattering and produces sharper images than other glass types.

