

TERMINOLOGY

★ ★ BINOCULARS ★ ★

A binocular consists of two optical systems that are joined by a hinge and (typically) share a common focusing mechanism.

The ability to create an image for both eyes simultaneously provides a realistic perception of depth.

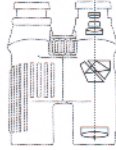
Binoculars are available in a great variety of sizes, magnifying powers and features to suit any purpose or preference.

Prism Systems

The prism system of a binocular reduces the size needed to contain a long optical path and turns what would be an upside-down image right-side-up. There are two types of prism systems, roof and porro.

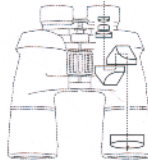
Roof Prism System

In roof prism binoculars the prisms overlap closely, allowing the objective lenses to line up directly with the eyepiece. The result is a slim, streamlined shape in which the lenses and prisms are in a straight line. Roof prism binoculars are less bulky and more rugged than an equivalent porro model.



Porro Prism System

In porro prism binoculars the objective or front lens is offset from the eyepiece. Porro prism binoculars provide greater depth perception and generally offer a wider field-of-view.



Waterproof/Fogproof

Some binoculars are O-ring sealed and nitrogen-purged for total waterproof and fogproof protection. These models can withstand complete immersion in water and stay dry inside. The interior optical surfaces won't fog due to rapid temperature change or humidity.

Magnification (Power)

Binoculars are often referred to by two numbers separated by an "x". For example: 8x32. The first number is the power or magnification of the binocular. With an 8x32 binocular, the object being viewed appears to be eight times closer than you would see it with the unaided eye.



7x



10x

Objective Lens Size

The second number in the formula (8x32) is the diameter of the objective or front lens. The larger the objective lens, the more light that enters the binocular and the brighter the image.



32mm



50mm

Prism Glass

Most optical prisms are made from borosilicate (BK-7) glass or barium crown (BaK-4) glass. BaK-4 is the higher quality glass yielding brighter images and high edge-to-edge sharpness.

Coated Optics

Lens surface coatings reduce light loss and glare due to reflection for a brighter, higher-contrast image with less eyestrain.

Types of Coatings:

Coated – A single layer on at least one lens surface.

Fully Coated – A single layer on all air-to-glass surfaces.

Multi-Coated – Multiple layers on at least one lens surface.

Fully Multi-Coated – Multiple layers on all air-to-glass surfaces.

Field-of-View (F.O.V.)

The side-to-side measurement of the circular viewing field or subject area. It is defined by the width in feet or meters of the area visible at 1000 yards or meters. A wide-angle binocular features a wide field-of-view and is better for following action. Generally, the higher the magnification, the narrower the field-of-view.



Resolution

Resolution, or definition, is the ability of a binocular to distinguish fine detail and retain clarity.

Exit Pupil

Refers to the size of the circle of light visible at the eyepiece of a binocular. The larger the exit pupil, the brighter the image. To determine the size, divide the objective lens diameter by the power (an 8x32 model has an exit pupil of 4mm).

Eye Relief

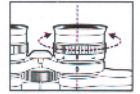
The distance a binocular can be held away from the eye and still present the full field-of-view. Extended or long eye relief reduces eyestrain and is ideal for eyeglass wearers.

Eyeglass Wearers – Eyecups

Bushnell® binoculars come with twist-up, pop-up or soft rubber fold down eyecups which go down for eyeglass wearers. These options allow everyone to see the entire field-of-view.

Diopter Adjustment

A "fine focus" adjustment ring usually provided around one eyepiece to accommodate for vision differences between the right and left eyes.



Rainguard®

With Rainguard®, Bushnell's permanent, patented, hydrophobic and oleophobic lens coating, a foggy view is no longer an issue. This unique coating acts on water drops from rain, snow, sleet and even your own breath, reducing them into much smaller droplets. These tiny drops scatter less light, ensuring you a clearer, brighter view.



XTR™ Technology

As light passes through the many prisms and lenses of a roof prism binocular, some light is usually lost along the way. Our exclusive new XTR™ technology – utilizing 60 layers of coatings on each prism – conserves, harnesses and optimizes the available light. XTR delivers an amazing 99.73% light transmission per lens for a combined light transmission of 90%, making the Bushnell Elite® series the brightest binocular in its class.

PC-3® Phase Coating

Found on the best roof prism binoculars, this chemical coating is applied to the prisms to enhance resolution and contrast. Would not provide an advantage on porro prism models.

Rubber Armor

Rubber armor provides multiple benefits. It helps protect the binocular from the bumps and scratches that come with day-to-day use. It provides a comfortable gripping surface for making them easier to hold on to. It's easy to wipe clean after a tough day in the field. And it suppresses noise if the binocular bumps aluminum or other non-rubber surfaces, which might otherwise spook wildlife.