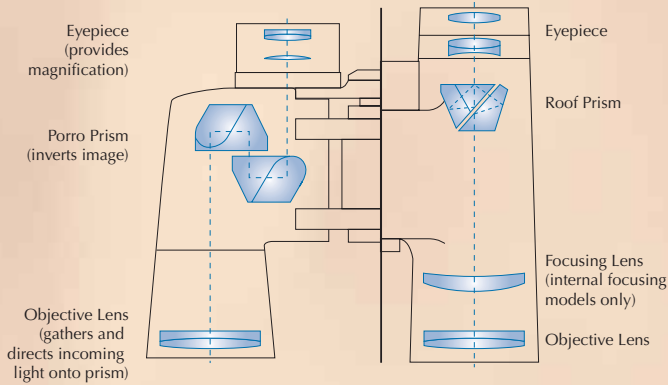


# CHOOSING YOUR BINOCULAR

The following information aims to give you a basic understanding of how binoculars work, the different specifications available and what they mean, plus some points to help you choose the best instrument suited to you.

**Specification** E.g. 8x42. The number '8' denotes the magnification and means an object appears to be 1/8th of its' actual distance away. Using this rule an object 40m distant appears to be only 5m away. '42' is the diameter of the objective lens (the large end) in mm through which light enters the binocular.

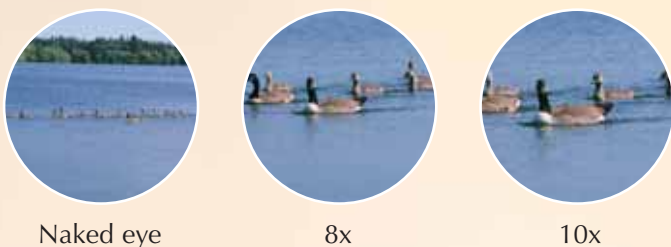


**Z** or **B** stand for **porro prism** binoculars. The basic optical design of these 'traditional-shape' instruments mean they tend to deliver better optical performance for your money compared to **roof prism (D)** binoculars, which are more compact but also more expensive.

The rise in popularity of roof prism binoculars is as a direct result of this system being favoured in the development of instruments with user oriented features. These include; internal focusing for waterproofing, long eyerelief eyepieces that enable the viewer to obtain the full field of view with or without glasses and close focus making them useful for watching butterflies and other insects.

**B** when seen on roof prism binoculars including Opticron **BGA** = full field of view for spectacle wearers. **GA** = rubber armouring and **W** or **WA** = wide angle vision. **CF**, (centre focusing) is more popular than **IF** (individual eyepiece focusing) especially when you need to focus at different distances under 50m. Most 'IF' binoculars are 7x magnification and have a large depth of focus which tends to eliminate the need for focusing adjustment at distances over 50m.

**What magnification?** Within any given range of binoculars the higher the magnification relative to the objective lens diameter, the lower the apparent image quality. Images appear less sharp and have a lower 'relative' brightness and poorer colour contrast.



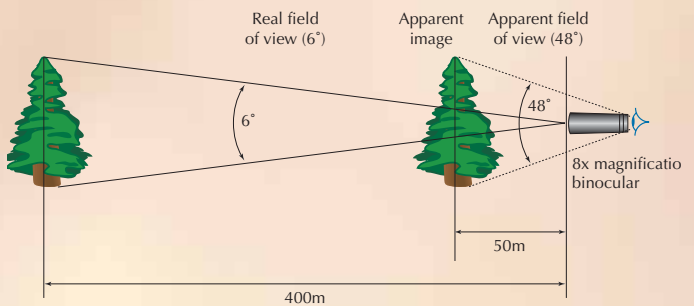
Higher magnification binoculars also;

- have a shallower depth of focus (distance in focus at any one focus setting), requiring more use of the focus wheel
- amplify natural hand-shake affecting the stability of the image being viewed.

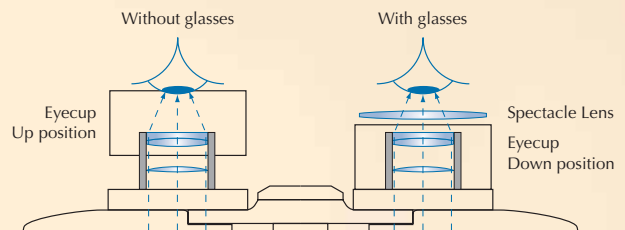
For general observation choose a 7x or 8x magnification. If you want binoculars of 10x or over try them first.

**What objective lens size?** The amount of light entering a binocular is directly related to the surface area of the objective lens (OG). A 50mm OG will admit 2.5x the light of a 30mm OG. The amount of light reaching the eye is known as the exit pupil diameter (EPD) and its' size can be found by dividing the OG diameter by the magnification. For example the EPD of an 8x32 = 4mm while the EPD of an 8x56 = 7mm. As a general rule the iris dilates between 2 and 3 mm (bright sunlight) and 6 and 7 mm (twilight) and so a choice should be made on the type of use the binocular is being put to. For general use choose a 7x42 or 8x42 binocular with an EPD of +5mm.

**The field of view** of a binocular is dependent on the optical design and not simply the magnification. It is expressed as either the width of panoramic view in metres from a distance of 1000 metres or in degrees where 1° is approximately 17.45m.



**Wearing glasses** Many binoculars provide the full field of view when wearing glasses by either folding down the rubber eyecups or by turning/pushing retractable eyecup assemblies to the 'down' position. As a general rule the longer the eyerelief - the distance between the surface of the eyepiece and the point where the pupil is positioned for full field of view - the better the instrument for spectacle wearers. If you think you want wear glasses while using your binocular, choose one with an eyerelief of 15mm or over.



**Weight** For many people, small, lightweight binoculars that can be taken anywhere will be used much more than larger, heavier ones which tend to be left at home or in the car!