## FUJINON

## Fuiinon Optical Inc.

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## FUJINON invites comparison. In fact, we demand it!

For your sake, never buy a pair of binoculars without first comparing it to others.

For the same reasons you test drive cars and listen to many stereo systems before deciding, you owe it to yourself to compare FUJINON with the least expensive and the most expensive binoculars available today.

Clearly superior to inexpensive binoculars which can subject you to optical distortion, flare-even discomfort when used for prolonged periods-FUJINON binoculars are also equal, if not superior to-the most expensively-priced binoculars costing twice as much as FUJINON.


All the things you have come to expect from a precision instrument you'll find when you first experience the feel, balance and features FUJINON gives you.
Whatever model you examine, you will immediately note the workmanship, maneuverability and ease of operation.

But the FUJINON story goes far beyond pleasing esthetics.
Our binoculars are the world's most expensively built because we put more technology into them.


# FUJINON binoculars... results of a grand tradition of optical excellence. 

FUJINON Optical is part of the dynamic Fuji Photo Film group known throughout the world for the finest in cameras, film and audio tapes. FUJINON advanced design products include binoculars, medical fiberoptic instruments, and television lenses and systems for broadcast and closed circuit cameras. Many of the news events, entertainment and sports broadcasts you watch are the result of FUJINON leadership in tv lens technology. (In fact, the 1980 Summer Olympics telecast from Moscow will depend heavily on the super zoom FUJINON lenses on NBC's cameras.)


## What makes FUJINON binoculars better?

Test FUJINON. Compare FUJINON. Dollar for dollar, FUJINON is the best investment you can make in binoculars... because we put more money into making them.

While other glass manufacturers may use clay crucibles to melt glass, we use platinum crucibles to reduce the possibility of contamination from impurities.
Because advanced design optics require mathematical skills of the highest order, we maintain an elaborate computer center to assist our optical engineers every step along the way-with total quality control checks in-between.
Another expense which insures our reputation for quality is our exclusive and patented Electron Beam Coating (EBC) process. While costly, it pays for itself by virtually eliminating flare while providing maximum brightness possible; a lens with EBC transmits $99.8 \%$ of the light; only $0.2 \%$ is reflected. In addition, the FUJINON EBC zirconium oxide process (applied at 2700 C) improves color transmission across the spectrum and is uniformly thin edge to edge.

## A short course in binocular optics

An understanding of the following items will help you discuss binoculars with your Authorized FUJINON Dealer...


Terms such as $7 \times 50$ are used to indicate binocular performance. The " 7 " refers to the magnification; the " 50 " is the diameter in mm of othe objective lenses.
Magnification ( $\mathbf{x}$ ): This indicates how many times a viewed object is enlarged compared to the naked eye. In terms of distance, at $7 x$ an object 700 yards away will appear 100 yards away.
Objective lens effective diameter ( mm ): The brightness of a scene is based upon the size (diameter) of the objective lens. The larger the diameter of the objective lens, the greater the quantity of gathered light. This means a brighter and higher resolution image can be obtained.

Field of view (in yards, meters or degrees): This refers to the portion of the whole scene that can be viewed in binoculars at one time. It is determined by the distance from the objective lens to the viewed object. The width of the viewable portion is usually expressed in degrees. Higher magnification results in a narrower field of view. Exit pupil: This figure is the objective lens effective diameter divided by the magnification. Example: in the case of $7 \times 50,50 \mathrm{~mm}$ divided by 7 equals 7.14 exit pupil. Thus, a large diameter objective lens will have a larger diameter exit pupil. The same diameter lens with high magnification will have a smaller diameter exit pupil. The higher the exit pupil number, the greater the brightness - an important consideration when binoculars will be used in foggy conditions or at night.

## Note:

When examining a new pair of binoculars, hold them at arms length and look for the bright round circles in the ocular lenses. These circles are the exit pupils and on high quality binoculars they should always be perfectly round.
Brightness: This is equal to the square of the exit pupil diameter. In the case of $7 \times 50$, the exit pupil is 7.14 and the brightness is 50.4 (7.14×7.14). The brightness increases greatly with increased objective lens diameter due to the large light gathering ability.

## Focusing Methods:

Center Focus (CF):

- Both eyepieces are focused simultaneously by a single focusing ring. This system is most widely used for general purpose binoculars.

Adjustable diopter scale on one ocular lens to permit compensations for differences in vision between right and left eyes.

Individual Focus (IF): Each eye piece is focused separately. This construction is more rigid and airtight making it suitable for use in severe conditions. This type is widely used for professional and special applications. It is the only focusing system which can be made totally waterproof.


## FUJINON binocular specifications

|  | 7x50MT | 8x30MT | 10x70 | 14x70 | $15 \times 80$ | 25x150 | 4×25 | $\begin{aligned} & 7 \times 24 \mathrm{HCF} \\ & 7 \times 24 \mathrm{RB} \end{aligned}$ | $\begin{aligned} & 7 \times 28 \\ & \text { HCF } \end{aligned}$ | $\begin{aligned} & 9 \times 24 \\ & \mathrm{HCF} \end{aligned}$ | $\begin{aligned} & 9 \times 28 \\ & \text { HCF } \end{aligned}$ | $\underset{\substack{10 \times 32 \\ \text { HCF }}}{\substack{ \\\hline}}$ | $\underset{\text { HCF }}{12 \times 36}$ | $8-16 \times 40$ | 10-20x50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 7x50MTR | $8 \times 30 \mathrm{MTR}$ | MT | MT |  |  | 4 | 7 | 7 | 9 | 9 | 10 | 12 | 8-16 | 10-20 |
| Magnification | 7 | 8 | 10 | 14 | 15 | 25 |  | 3.4 | 4 | 2.7 | 3.1 | 3.2 | 3 | 5-2.5 | 5~2.5 |
| Exit Pupil Diameter (mm) | 7.1 | 3.75 | 7 | 5 | 5.3 | 6 | 25 | 24 | 28 | 24 | 28 | 32 | 36 | 40 | 50 |
| Objective Lens Diameter (mm) | 50 | 30 | 70 | 70 | 80 | 150 | $5^{\circ}$ | $7{ }^{\circ}{ }^{\prime}$ | $7^{\circ} 30^{\prime}$ | $6^{\circ}$ | $6^{\circ}$ | $5^{\circ} 30^{\prime}$ | $4^{\circ} 35^{\prime}$ | $5^{\circ}-3^{\circ}-45^{\prime}$ | $4^{\circ} 10^{\prime} \sim$ |
| Field of View | $7{ }^{\circ} 30^{\prime}$ | $7{ }^{\circ} 30^{\prime}$ | $5^{\circ} 73^{\prime}$ | $4^{\circ}$ | $4^{\circ}$ | $2^{\circ} 42^{\prime}$ |  |  |  |  |  |  |  |  | $2^{\circ} 40^{\prime} \sim$ |
|  |  |  |  |  |  |  |  | 131 | 131 | 105 | 105 | 96 | 80 | 87-58 | 73-47 |
| Field at 1,000 (yards) | 131 | 131 | 91 | 70 | 70 | 38 |  | 11.7 | 16 | 7.3 | 9.6 | 10.2 | 9 | 25-6.2 | 25-6.25 |
| Brightness | 50.4 | 14.1 | 49 | 25 | 28.1 | 36 | 67 | 108 | 114 | 100 | 112 | 124 | 150 | 149 | 185 |
| Length (mm) | 178 | 123 | 260 | 255 | 499 | 865 | 64 | 85 | 70 | 85 | 70 | 76 | 84 | 153 | 164 |
| Width (mm) Minimum | 157 | 163 | 210 | 210 | 233 | 480 | 102 | 103 | 108 |  | 108 | 116 | 120 | 186 | 198 |
| Maximum | 203 | 176 | 238 | 238 | 233 | 480 | 4 oz . | 8 oz . | 1202. | 10 oz . | 12 oz . | 1402. | 1602. | 2 | 2.4 |
| Weight (lbs.) | 2.7 | 1.5 | 4.1 | 4.2 | 16.1 | 60.5 |  |  |  |  |  |  |  |  |  |

## Outside they are distinctively beautiful. Inside they look even better.

Built to military specifications, here are the favorites of professionals and serious sportsmen involved in yachting, commercial shipping, aviation and competitive sailing. Tested by Japan's defense agency, FUJINON binoculars were immersed in 2 meters of salt water for 2 weeks. At the conclusion of the test, the binoculars were examined and found to be totally intact. The only thing that can get inside is light. (Note: Packed in with every FUJINON Marine Tested binocular is an instruction booklet that recommends washing our binoculars with fresh water after any exposure to salt spray or water.)


