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English

# PENTAX

*Sport Optics*





# SPORT OPTICS PROGRAM

## CONTENTS

<b>06</b>	<b>BINOCULARS</b>
<b>08</b>	Technical Innovation
<b>10</b>	Sport Optics Terminology
<b>11</b>	Visual Criteria - What to look for?
<b>12</b>	Guarantee, Maintenance, Service, Personalising...
<b>13</b>	<b>ROOF PRISM</b>
<b>14 - 15</b>	DCF ED / DCF SP
<b>16 - 17</b>	DCF CS / DCF Marine 7x50 Hydro
<b>18 - 19</b>	DCF BR 9x42 / DCF BC 9x32
<b>20 - 21</b>	DCF NV / DCF LV
<b>22</b>	DCF SW
<b>23</b>	<b>PORRO PRISM</b>
<b>24 - 25</b>	Papilio / PCF WPII
<b>26 - 27</b>	XCF / UCF XII
<b>28 - 29</b>	UCF Zoom II / UCF WP
<b>30 - 31</b>	UCF R / JUPITER III
<b>32 - 33</b>	Binocular Selection Matrix
<b>34</b>	<b>SPOTTING SCOPES</b>
<b>36</b>	Introduction
<b>37</b>	Technical Innovation
<b>38</b>	PF-65EDII / PF-65EDAII
<b>39</b>	PF-80ED / 80EDA
<b>40</b>	PF-100ED
<b>41</b>	O-GPS1 with ASTROTRACER
<b>42</b>	Eyepieces
<b>43</b>	Eyepiece Selection Matrix
<b>44 - 45</b>	Digiscoping with DSLR and Compacts
<b>46</b>	Fostering Projects



## IT'S ALL ABOUT LIGHT! PENTAX: 90 YEARS OF INNOVATION EXCELLENCE ...

Our roots are in the optical industry. We have made it our mission to engineer light. We have been doing that for 90 years ... not many companies can look back that far!

Our forté in optics is:

- **to harmonize performance with precision**
- **to wed simplicity with reliability**
- **to innovate with added quality**
- **to associate comfort with affordability.**

In fact, you could say that affordable excellence is our ambition!

For 90 years we have been pushing technology to new frontiers but have realized that engineering great products is not enough! We want to put our expertise in to good use and link Sport Optics with a focus on nature. Nature is a gift and we at PENTAX believe that every individual can contribute to conservation by observing nature, learning from it and becoming passionate about it.

So, from this moment on, we invite you to embark on a "journey of light" – passing through glass and prisms, through lenses and coatings, past focusing wheels and through the eyecups to bring the wonderfully-detailed world around us a little bit closer.





Expansion to industrial production of camera lenses.



Introduction of the first Japanese SLR camera – "Asahiflex I".



Introduction of the first family of roof prism binoculars – the DCF SMC series. The trend towards "compact quality" has begun.



Introduction of the next generation of smc A lenses.



Asahi Optical Company (later PENTAX) starts manufacturing optical instruments.



Introduction of the "Jupiter" binoculars.



Introduction of the smc (Super Multi Coating) process to improve light transmission through the lens, thereby reducing refraction, reflection and dispersion.



Introduction of PENTAX telescopes. Introduction of the world's first autofocus SLR camera.



## PENTAX MILESTONES



Introduction of the UCF (N) series of binoculars with aspherical lenses.



Introduction of the Papilio series – the CLOSE technology (Convergent Lens Optical System Engineering) makes possible a unique focusing distance of just 50cm.



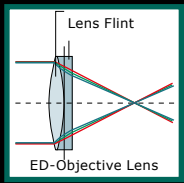
Introduction of the DCF LV and DCF SW series.



PENTAX launches first 9x Open Bridge binocular series

	1991	2003		2008		2010
1985		2002		2006		2011

Introduction of ED-apochromatic lenses.



Introduction of the "Digibino" – makes viewing with simultaneous digital photography possible.



Introduction of the DCF ED series with dielectric prism coating.



Introduction of the MARINE 7x50 "Hydro", first roof prism maritime binocular.



Launch of O-GPS1 with ASTROTRACER for photography of celestial bodies with DSLR and spotting scopes.





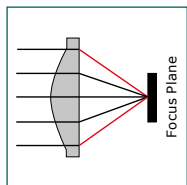


# BINOCCULARS

# BINOCCULARS

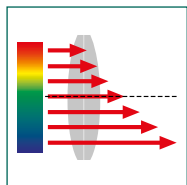


# TECHNICAL INNOVATION



## 1 ASPHERICAL EYEPIECE LENS

Edge-to-edge sharpness is a vital element to comfortable viewing. To achieve this we utilise aspherical lens elements in our eyepieces. This is a specially shaped lens design that reduces aberration to a minimum. In our SP and ED models we use hybrid-Aspherical lens elements that have the additional advantage of superior functionality while being lightweight and compact.



## 2 SMC MULTI-LAYER LENS COATING

To improve the overall transmission and resolution, lens-coatings are used to reduce reflection and any loss in contrast. With the use of Super Multi Coated lenses, PENTAX achieves high efficiency, allowing light transmission of up to 98%! The PENTAX smc coating is a complex and sophisticated 7-layer coating that corrects light transmission over the full light spectrum. The patented PENTAX smc technology is renowned in the optical industry.



## 3 BAK4 PRISM

A prism is a complex optical element necessary to correct the image the right way up and reduce overall length of the binocular. In a prism, light travels through complicated angles and so the quality of the prism glass used is of significant importance. PENTAX uses exclusively high-index BaK4 prisms; made of very pure Barium glass.



## 4 MULTI COATED



Up to 4 layers of coating are applied to all individual lenses in the binocular. The increased light transmission through all lens surfaces upgrades brightness, clarity and contrast.

## 5 HYDROPHOBIC COATING

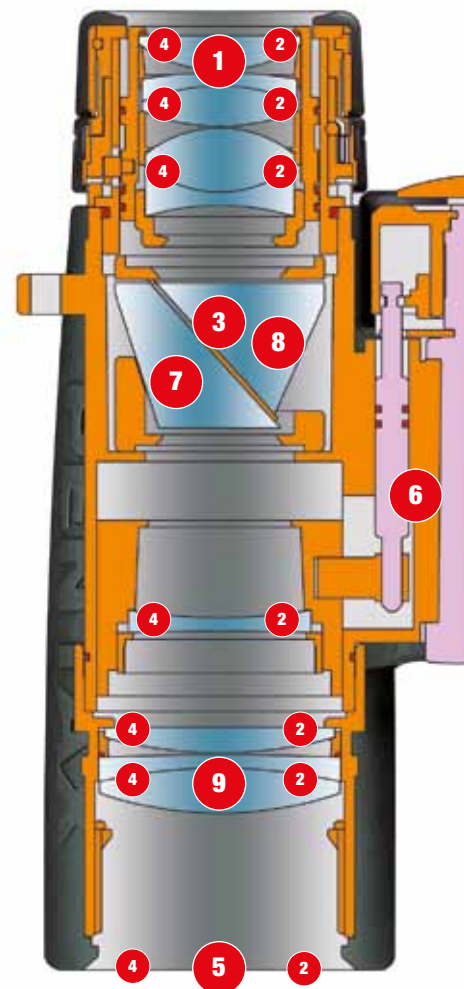
Water droplets on a lens have a negative influence on the ability of light to enter the objective lens. By using a unique water repellent coating on all outer lenses we make water drops "bead" into small, deformed droplets. The deformed droplets cause less distortion and "slide" more easily off the lens. Your binocular or spotting scope remains fully functional even in rain, snow, fog or condensing breath. The hydrophobic coating can be found on all PENTAX DCF SP series binoculars.



## 6 INNER FOCUSING



The InnerFocus function is critical to low-maintenance and long life guarantee. Exposure to airborne particles and moisture is avoided, thereby ensuring that no outside influences can penetrate the binocular housing and disrupt functionality.



## 50 CM MACRO FUNCTION

Absolutely unique and innovative, the macro function of the Papilio allows the user to view objects from a distance of only 50cm! Users can literally immerse themselves in their surroundings rather than watching from a distance. Very popular with entomologists and everyone that loves butterflies, spiders, flowers, etc.





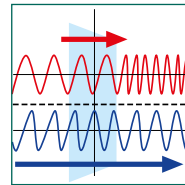
## 7 DIELECTRIC COATING

Dielectric Coating of the prisms serves to enhance the color "truity" of the image. Up to 70 layers of surface correction coatings are "vaporized" onto the surface of the prisms in a vacuum. This maximizes the quality of visible light in the color spectrum between infra-red and ultra-violet.



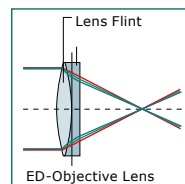
## 8 PHASE CORRECTING COATING

In roof prism binoculars, light rays are mirrored several times which can result in reduced light transmission. By adding an additional Phase Correcting coating the light rays frequencies are corrected to their original values. Unlike other manufacturers that only use this technology in their high-end models, PENTAX has added the latest in Phase Correction Prism coating to all roof prism models.



## 9 ED-OBJECTIVE LENSES

To build superior binoculars the ultimate challenge is to avoid colour errors (Chromatic aberration). Several techniques are available but by far the best results can be achieved by using ED (or low-dispersion) glass in the objective lens. ED-lenses have a high breaking index with minimal dispersion. In other words: the higher value colour spectrum wavelengths are reduced to an absolute minimum. The result with ED-optical elements is comparable to the use of Apochromatic lenses; but now only 2 lens elements are used. The advantage of this technology is clear; the binocular is lighter in weight and more compact.



## 10 CHALLENGING THE ELEMENTS

PENTAX is one of the few companies who physically test their Sport Optics products against both recognised JIS norms to classify the degree of resistance to environmental influence. We define and test against:



### JIS 6 WATERPROOF

The product is fully waterproof and has maximum protection against rain, dust, moisture or internal fogging due to extreme temperature fluctuations. The binocular and spotting scopes are double O-ring sealed as well as nitrogen-purged so that temporary (i.e. accidental), immersion into 1 metre of water will have no negative effects.\*



### JIS 4 WATER RESISTANT

The unit is protected against rain, snow, moisture and particles larger than dust, such as sand. However, it cannot be submerged in water since products being tested against JIS 4 are sealed with a single O-Ring.

\*PENTAX Sport Optics products are not designed for underwater use.

## 11 NITROGEN PURGED

Nitrogen is a chemical element and a colorless, odorless and tasteless gas. It contains very little humidity and is therefore used to "purge" binoculars and spotting scopes of the high-humidity air that is part of our environment. Due to the low humidity factor, nitrogen prevents condensation from forming on the internal lenses of optical instruments during phases of rapid temperature change. Furthermore, because nitrogen is purged into the optical instrument at slightly above atmospheric pressure, dust and other miniscule particles are prevented from entering the housing.



# SPORT OPTICS TERMINOLOGY.

The purpose of a Sport Optics product is simple – to magnify the view, to bring objects closer. Choosing the right product for the purpose you have in mind is a highly personal decision. With such a wide variety of different models on offer you need help to direct you to the solution that's best for you. This catalogue will assist you in the decision-making process. Before turning our attention to the products, let's have a look at some of the terminology.

## MAGNIFICATION

Magnification is the first number you read in the product description. For example: DCF ED 8x43. The 8 indicates that you are bringing the object 8x closer than if viewed only with the naked eye. Generally, by increasing magnification, you reduce the field-of-view. Also, the higher the magnification, the more difficult it is to keep the binocular stable and the image steady. Ideally, a magnification of 10x – or lower – is most suitable for longer periods of observation.

## OBJECTIVE LENS

The objective lens is the lens on the front of the binocular or spotting scope. Let us use the example of the DCF ED 8x43 again. The second number in the product description refers to the diameter of the objective lens in mm. A larger diameter will allow more light to enter the binocular. This becomes very important when used under low-light conditions. However, factors such as additional weight, size and expense need to be considered.



## FIELD-OF-VIEW

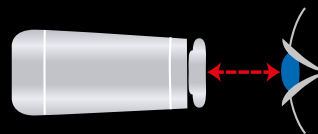
The field-of-view is the width of the image viewed from left to right (or edge-to-edge) without moving the binocular. This measure is usually expressed in metres (at 1,000 metres distance), but also in degrees. A field-of-view expressed in degrees indicates the angle-of-view of the binocular. Golden rule: the higher the value in metres or degrees, the larger the field-of-view.

## SIZE AND SYSTEM

<b>Compact</b>	Objective lens diameter up to 28mm
<b>Semi-compact</b>	Objective lens diameter from 28 to 36mm
<b>Full Size</b>	Objective lens diameter over 36mm

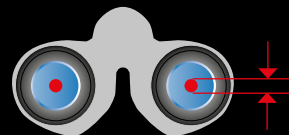
## EYE RELIEF

Eye relief is the distance from your eye to the outer lens of the eyepiece (ocular lens) and is specified in millimetres. A higher eye relief results in greater viewing comfort. Ideally, the eye relief for compacts should be in the range of 8–14mm and for full-size between 15 and 20mm. It is important for spectacle wearers to maintain at least 17mm to enjoy the full field-of-view.



## EXIT PUPIL

The exit pupil is the light image formed at the eyepiece (ocular) lens of the binocular. It should be a perfect circle and is measured in mm. (Be sure to check if the light image appears hexagonal: this is evidence that an inferior prism was used in the construction.) The exit pupil can be calculated by dividing the diameter of the objective lens by the magnification. Referring to our example, the DCF ED, with an objective lens of 43mm and a magnification of 8x, has an exit pupil of 5.3mm. IMPORTANT: Comfortable viewing is achieved only when the exit pupil is close to the diameter of your own pupil. Be advised there is a close link to the age of the user.



# VISUAL CRITERIA – WHAT TO LOOK FOR?



Many elements define the final result – the quality of the image you’re viewing. Specifically with a more experienced eye a number of elements can be tested and reviewed.



## CONTRAST

Is the difference in brightness between light and dark areas within an image. More contrast is perceived as sharper and brighter.



## RESOLVING POWER

Indicates to what extent the binocular is capable of reproducing detail – specifically under low-light conditions.



## CHROMATIC ABERRATIONS

Are the direct result of light rays refracting at different angles and are a good indicator to what level the binocular is equipped with lens and prism coatings.



## EDGE-TO-EDGE SHARPNESS

The closer light rays come to the edge of the lens – the higher the risk they diverge from the actual image point. The result will be a loss of sharpness and contrast at the edges; in extreme cases flares become noticeable.



## TWIST-UP EYECUPS

Binoculars have large, multi-stop, twist-up eyecups that can easily be adjusted to your desired position. They can be fixed in 2 to 4 positions, depending on the binocular model. Combined with a large-diameter eyepiece (ocular) lens and comfortable eye-

relief it allows any user, even those wearing spectacles, to find a comfortable setting.



## REFLECTIONS AND FLARE

Due to refraction, light can enter the binocular through the objective lens and strike places where it shouldn't. Internal reflections and scattering causes visible flare, particularly in bright sunlight. If the interior of a binocular is designed and finished correctly

then internal reflections and flare will not be visible.

# A PERFECT PRODUCT FOR LIFE!

## GUARANTEE

As PENTAX manufactures top-class products and we are not afraid to go public. As stated earlier, we are committed to quality and are very confident in our products. That is why all our Sport Optics products have a 30-Year Guarantee – world-wide – on any and all materials and construction.



*30 years guarantee against material and production defects!*

## MAINTENANCE

There are several things you can do to keep your binocular in superb condition. When not using the binocular utilise the carrying case for storage and transportation. Only take the lens-caps off when you want to view. Never view straight into the sun – this can lead to serious eye injury. Avoid storing your binocular in high temperature zones. Never clean the outside lenses without first gently brushing away dust or other small particles that can scratch the surface of the lens. Use only a soft lens tissue (Code No. AP0070000323). Never use any solvent liquids unless specifically recommended by PENTAX or an optician.

## SERVICE

In the event your Sport Optics product should be damaged or you would like to have them serviced (i.e. check-up), please contact your dealer or local PENTAX Service Facility. An extended list of PENTAX Subsidiaries and Distributors/service agents can be found at the end of this catalogue.

## PERSONALISING YOUR BINOCULAR

It is important you adjust the binocular correctly for the profile of your face and eyesight. By following the steps below you will get the best out of your binocular:

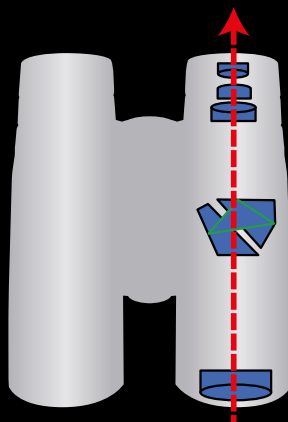
- 1 Adjust the binocular to the correct inter-pupillary distance – gently adjust the bridge to align the eyepiece (ocular) lens with your pupils. You should see a single, full circle.
- 2 Use a lens cap to cover the right objective lens.
- 3 Keep both eyes open while focusing on a distant object (e.g. 10 metres). Focus the image by using the central focus wheel.
- 4 Remove the lens cap from the right and place onto the left objective lens.
- 5 Unlock the dioptre adjustment (if required) on the right eyepiece or central body. Keep both eyes open and adjust the dioptre until the image is in focus. During this process, do not touch the focusing wheel!
- 6 Remove the lens cap from the objective lens and fine-focus with the central focus wheel.
- 7 When satisfied with the result, relock the dioptre adjustment (if required).

You have now "personalised" the binocular for your specific viewing pleasure and comfort.





# ROOF PRISM



## Type of construction: Roof Prism

Eyepiece and objective lens are positioned in a straight line.

## Advantage:

- **More compact**
- **Easier to hold for longer periods**
- **Generally higher standard of optical and mechanical performance**
- **Often fully water, fog and dustproof**

# DCF ED

## EXPERIENCE (R)EVOLUTION.

You have to see it to believe it! The DCF ED series brings you closer to the finest detail you have ever experienced. Thanks to ED-lens elements and dielectric coating, in addition to the standard smc coated lenses, light transmission is maximised while chromatic aberrations completely minimised. This is quite simply the perfect birding and nature-viewing binocular with professional levels of optical performance. The DCF ED series is proof that we take our Sport Optics seriously. So serious, in fact, that we challenge the top-end establishment to meet our Value for Money benchmark.

- **Lightweight die-cast magnesium frame**
- **Built-in durability with extra hard-coating for maximum protection on all to-air exposed lenses**
- **Dielectric Prism coating; over 70 layers of individual coating maximizing light transmission to up to 98.7% efficiency**
- **Comfortable viewing thanks to large ocular lenses, 4-position twist-up eyecups and well balanced eye-relief of 17 to 22mm**
- **Exclusive green full-body rubberised body with extra large focus wheel**
- **Lockable diopter adjustment mechanism**

### DCF ED

Magnification	8x	8x	10x	10x
Objective lens diameter	32 mm	43 mm	43 mm	50 mm
Type	Full-size Roof			
Lens Coating	Fully Multi-coated with scratch-resistant objective lens coating			
Prism	BaK4 with dielectric and phase correction coating			
Twilight Factor	16.0	18.5	20.7	22.4
Field of View (at 1.000 m)	131 m	110 m	105 m	87 m
Close focus	1.5 m	2.0 m	2.0 m	3.5 m
Exit Pupil	4.0 mm	5.4 mm	4.3 mm	5.0 mm
Eye Relief	17 mm	22 mm	17 mm	22 mm
Eyecups	Multi-Stop Twist-Up			
Waterproof	Yes (JIS Class 6) – Nitrogen purged			
Tripod adaptor	With adapter TP-3 – PENTAX Code No. 69554			
Size (LxWxH in mm)	127 x 126 x 53	146 x 126 x 53	146 x 126 x 53	170 x 132 x 59
Weight (g)	665	715	730	855
PENTAX Code No.	62622	62623	62624	62625



14



## DCF SP

### THE RUGGED MULTI-TALENT.

The DCF SP is an all-rounder! Rough and tough with an exceptional image quality, edge-to-edge sharpness, unsurpassed brightness & clarity and a resolution that will impress – especially under twilight conditions. What more could you ask for? We built the DCF SP to weather all weather! The strong body is protected with a solid, green rubber armouring – the binocular can easily be handled when wearing gloves. To assure all-time functionality we have added a hydrophobic coating on all to-air exposed lenses – rain, fog, snow or even your own breath will no longer trouble your viewing.

- **Unique Hydrophobic coating on all to-air exposed lenses**
- **Light weight magnesium-alloy body with full-body green rubber housing**
- **Hybrid aspherical ocular lenses**
- **Body attached objective lens-covers**
- **Lockable diopter adjustment mechanism**

DCF SP				
Magnification	8x	8x	10x	10x
Objective lens diameter	32 mm	43 mm	43 mm	50 mm
Type	Full-size Roof			
Lens Coating	Fully Multi-coated with water-repellent hydrophobic coating on all to-air exposed lenses			
Prism	BaK4 with High Resolution Phase Correcting coating			
Twilight Factor	16.0	18.5	20.7	22.4
Field of View (at 1.000 m)	131 m	110 m	105 m	87 m
Close focus	1.5 m	2.0 m	2.0 m	3.5 m
Exit Pupil	4.0 mm	5.4 mm	4.3 mm	5.0 mm
Eye Relief	17 mm	22 mm	17 mm	22 mm
Eyecups	Multi-Stop Twist-Up			
Waterproof	Yes (JIS Class 6) – Nitrogen purged			
Tripod adaptor	With adapter TP-3 – PENTAX Code No. 69554			
Size (LxWxH in mm)	126 x 127 x 52	126 x 146 x 52	126 x 146 x 52	132 x 170 x 59
Weight (g)	660	695	710	840
PENTAX Code No.	62619	62615	62616	62617



16



## DCF CS HIGHLY RESPECTED STANDARD GETS A NEW DESIGN.

This new generation design has all the good things PENTAX has delivered for many years in popular standard-size binoculars. With the DCF CS we are setting new optical standards. This binocular impresses in brightness, clarity and overall image quality. The DCF CS range is clearly a light-weight: only 615 grams on a full-size 10x42 binocular is unbelievable, almost sensational. When weight is a critical factor for you, the DCF CS is the perfect reason to upgrade to full size.

### DCF CS

Magnification	8x	10x
Objective lens diameter	42 mm	42 mm
Type	Full-size Roof	
Lens Coating	Fully Multi-coated	
Prism	BaK4 with High Resolution Phase Correcting coating	
Twilight Factor	18.3	20.5
Field of View (at 1.000 m)	131 m	105 m
Close focus	2.5 m	2.5 m
Exit Pupil	5.2 mm	4.2 mm
Eye Relief	21 mm	18 mm
Eyecups	Multi-Stop Twist-Up	
Waterproof	Yes (JIS Class 6) – Nitrogen purged	
Tripod adaptor	With adaptor TP-3 – PENTAX Code No. 69554	
Size (LxWxH in mm)	148 x 134 x 52	144 x 134 x 52
Weight (g)	640	615
PENTAX Code No.	62555	62556



- **Strong reinforced polycarbonate body; only 615g to carry!**
- **Fully waterproof and nitrogen purged (JIS Class 6)**
- **Super Reflective, High Index prism coating**
- **Comfortable eye-relief (max 21mm) and large diameter ocular lenses**
- **Hard-rubber covered body provides protection and grip**
- **Twist-up eyecups**
- **Easy diopter adjustment located on the central bridge**

# MARINE 7x50 "Hydro"

## MARITIME MIRACLE.



Exceptionally precise yet very robust, the Marine 7x50 "Hydro" was developed with quality optics in mind. The oil-filled compass reduces unwanted vibrations and the Blue LED-illumination renders a crisp and clear image even under low-light conditions. Demagnetised batteries ensure flawless performance of the built-in compass. The Hydro's magnesium alloy housing is nitrogen-purged, the lenses all fully multi-coated and the BaK4 prism phase corrected.

- **Durable aluminum die cast body**
- **Integrated compass with Blue LED-illumination for sharper contrast**
- **First roof-prism binocular using non-magnetised batteries for better compass performance**
- **Fully multi-coated lenses for excellent light transmission**
- **Fully water and dust-proof, nitrogen-purged**
- **Water repellent „hydrophobic“ coating on the objective lens**
- **BaK4 prism with phase correcting coatings**
- **Rubber armouring for easy grip**



MARINE 7x50 "Hydro"				
Magnification	7x			
Objective lens diameter	50 mm			
Type	Full size roof prism binoculars			
Lens	All lenses fully multi-coated			
Prism	BaK4 with Phase Correction Coating			
Twilight Factor	18.7			
Field of View (at 1,000 metres)	115 m			
Minimum focus distance	1.6 m			
Exit Pupil	7.1 mm			
Eye Relief	17.6 mm			
Eyecups	fully adjustable twist-up			
Size (L x W x H in mm)	175 x 134 x 62			
Weight (g)	976			
Accessories	Nylon case, neoprene strap			
Compass	Yes	Yes	Southern hemisphere	Southern hemisphere
Colour	Blue	Orange	Blue	Orange
PENTAX Code No.	51024	51025	51026	51027



## DCF BR 9x42







### MIND THE GAP.

The new binocular is gutsy indeed! Not only does it meet the viewer's traditional demand for 8x and 10x magnifications, it also has a hole in it for better grip! Ergonomically tough to beat, the new DCF BR 9x42 features an Open Bridge design with all the quality features found in the entire roof prism range PENTAX has on offer: smc-fully multi-coated lenses, inner focusing, water and dust proof, nitrogen-purged and phase correction coatings on the BaK4 prisms. The polycarbonate housing weighs in at a mere 665 grams and offers 4-stop, helicoid eyecups. The "Super Reflection Coating" serves to enhance light transmission and creates crystal sharp images.

- **"Super Reflection Coating" of the BaK4 prisms**
- **Unsurpassed ergonomic design**
- **Nitrogen-purged and therefore water and dust proof**
- **Inner focusing**
- **Polycarbonate housing weighing in at only 665g.**



DCF BR 9x42	
Magnification	9x
Objective lens diameter	42 mm
Type	Full-size Roof in Open Bridge design
Lens Coating	Fully Multi-coated
Prism	BaK4 with Super Reflective and High Resolution Phase Correcting Coating
Twilight Factor	19.4
Field of View (at 1,000 m)	107 m
Close focus	2.5 m
Exit Pupil	4.7 mm
Eye Relief	18 mm
Eyecups	4x Multi-Stop Twist-Up
Waterproof	Yes (JIS Class 6) – Nitrogen purged
Tripod adaptor	Yes TP-3 - PENTAX Code No. 69554
Size (LxWxH in mm)	147 x 128 x 59
Weight (g)	665
PENTAX Code No.	62598











## DCF BC 9x32 STRAIGHT DOWN THE MIDDLE.

The DCF BC 9x32 is an ergonomic masterpiece and a gap-filler indeed. Cutting straight through the middle of tradition with 9x magnification, this "midget" has sensational optics. Thanks to smc-fully multi coated lenses, phase correction and silver-evaporated coatings on the BaK4 prism, the DCF BC provides crystal sharp images and superb contrast. Ergonomically tough to beat, the DCF BC 9x32 has all the quality features found in the entire roof prism range PENTAX has on offer: inner focusing, water and dust proof and nitrogen-purged. The polycarbonate housing weighs in at a mere 500 grams and offers 5-stop, helicoid eyecups. Regardless of application, the total package this lightweight has to offer is a winner.

- **Unsurpassed ergonomic Open Bridge design**
- **Nitrogen-purged and therefore water and dust proof**
- **Inner focusing**
- **Polycarbonate housing weighing in at only 500g.**

DCF BC 9x32	
Magnification	9x
Objective lens diameter	32 mm
Type	Semi-Compact Roof in Open Bridge design
Lens Coating	Fully Multi-coated
Prism	BaK4 High Resolution Phase Correcting Coating
Twilight Factor	16.9
Field of View (at 1.000 m)	117 m
Close focus	2.5 m
Exit Pupil	3.6 mm
Eye Relief	16 mm
Eyecups	5x Multi-Stop Twist-Up
Waterproof	Yes (JIS Class 6) – Nitrogen purged
Tripod adaptor	No
Size (LxWxH in mm)	138 x 128 x 52
Weight (g)	500
PENTAX Code No.	62597

# DCF NV







## FULL-SIZE PERFORMER IN A SEMI-COMPACT BODY.

When (relatively) small binoculars start doing what (relatively) big binoculars are supposed to do, then we at PENTAX know we are doing something right! Performance as demonstrated by the DCF NV is not normal ... it's extraordinary! Great value for money – its body is constructed from light-weight polycarbonate and extremely durable. Extra features, such as the fully multi-coated lenses, ensure excellent resolution and contrast under tough conditions.

- **Comfortable large diameter ocular lens and eye-relief**
- **Light weight reinforced polycarbonate body**
- **Rigid rubber housing with extra large focus wheel**
- **Twist-up eyecups**
- **Fully waterproof and nitrogen-purged**



DCF NV		
Magnification	8x	10x
Objective lens diameter	36 mm	36 mm
Type	Semi-Compact Roof	
Lens Coating	Fully Multi-coated	
Prism	BaK4 with High Resolution Phase Correcting coating	
Twilight Factor	17.0	19.0
Field of View (at 1.000 m)	114 m	96 m
Close focus	3 m	3 m
Exit Pupil	4.5 mm	3.6 mm
Eye Relief	16 mm	17.5 mm
Eyecups	Twist-Up	
Waterproof	Yes (JIS Class 6) – Nitrogen purged	
Tripod adaptor	With adapter N – PENTAX Code No. 69553	
Size (LxWxH in mm)	155 x 129 x 53	155 x 129 x 53
Weight (g)	640	640
PENTAX Code No.	62486	62487



# DCF LV







## LIGHT VISION MEETS HIGH-END EXPECTATIONS.

It is compact and overloaded with high performance features to deliver outstanding viewing enjoyment. The sleek, fully rubberised and waterproof body includes a large focus wheel and twist-up eyecups for comfortable handling. The DCF LV is your ideal compact companion where optical performance is desired: with an impressively sharp and high-contrast image and excellent resolution!

- **Lightweight magnesium body**
- **9x28: an ideal combination of field of view and magnification**
- **Super-reflective prism finish, combined with phase correcting coating**
- **Comfortable eye-relief at 18mm and close-focus to 3 metres**
- **Fully rubberised body with extra large focus wheel**
- **4 position twist-up eyecups**
- **Click-stop diopter adjustment**



DCF LV	
Magnification	9x
Objective lens diameter	28 mm
Type	Semi-Compact Roof
Lens Coating	Fully Multi-coated
Prism	BaK4 with High Resolution Phase Correcting coating
Twilight Factor	15.9
Field of View (at 1.000 m)	98 m
Close focus	3 m
Exit Pupil	3.1 mm
Eye Relief	18 mm
Eyecups	Multi-Stop Twist-Up
Waterproof	Yes (JIS Class 6) – Nitrogen purged
Tripod adaptor	No
Size (LxWxH in mm)	117 x 115 x 44
Weight (g)	365
PENTAX Code No.	62599







## DCF SW

# SLIM & WATERPROOF BENCHMARK IN COMPACT ERGONOMICS.

This dual-axis, compact design is popular because it easily fits into your pocket when folded. The DCF SW combines this great feature with top quality lens and prism elements. No compromises in optical performance. What you will find is great clarity and crisp viewing. The modern design ensures good ergonomics for viewing, handling and easy focusing.

- **Fully waterproof and nitrogen-purged (JIS Class 6)**
- **Super Reflective Prism coating, including phase correction coating**
- **Rubber covered body provides protection and grip**
- **Twist-up eyecups**
- **Click-stop diopter adjustment**

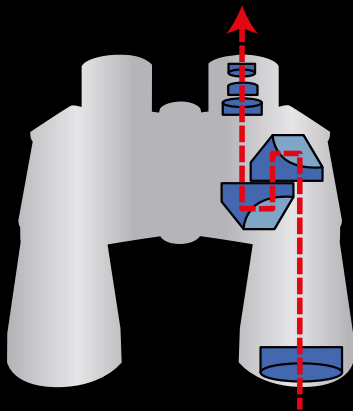
### DCF SW

<b>Magnification</b>	<b>8x</b>	<b>10x</b>
<b>Objective lens diameter</b>	<b>25 mm</b>	<b>25 mm</b>
<b>Type</b>	<b>Compact Roof</b>	
<b>Lens Coating</b>	<b>Fully Multi-coated</b>	
<b>Prism</b>	<b>BaK4 with High Resolution Phase Correcting coating</b>	
<b>Twilight Factor</b>	<b>14.1</b>	<b>15.8</b>
<b>Field of View (at 1.000 m)</b>	<b>96 m</b>	<b>87 m</b>
<b>Close focus</b>	<b>3 m</b>	<b>3 m</b>
<b>Exit Pupil</b>	<b>3.1 mm</b>	<b>2.5 mm</b>
<b>Eye Relief</b>	<b>21 mm</b>	<b>20 mm</b>
<b>Eyecups</b>	<b>Twist-Up</b>	
<b>Waterproof</b>	<b>Yes (JIS Class 6) – Nitrogen purged</b>	
<b>Tripod adaptor</b>	<b>No</b>	
<b>Size (LxWxH in mm)</b>	<b>110 x 105 x 40</b>	<b>110 x 105 x 40</b>
<b>Weight (g)</b>	<b>300</b>	<b>300</b>
<b>PENTAX Code No.</b>	<b>62593</b>	<b>62594</b>



# PORRO PRISM

POBBO PRIZM



## Type of construction: Porro Prism

Can be recognised with the eyepiece positioned off-line from the objective lens.

## Advantage:

- Less expensive
- Good Optical Quality

## Disadvantage:

- Less compact
- More awkward to hold for longer periods

# PAPILIO

## 50cm!!! WHAT MORE COULD YOU WANT?



The Papilio is a unique binocular. Of course it's a fine and compact companion on nature trails and holidays, but when your interests are flowers, insects, bugs or butterflies the Papilio turns out to be an indispensable instrument. No other binocular combines fine handling and easy viewing with an unsurpassed close focus of only 50cm! You can observe nature in its natural habitat without disturbing or missing the finest detail.

- **Convergent Lens Optical System Engineering (CLOSE) allows close focus to 50cm – unique in the market**
- **Aspherical lens elements providing edge-to-edge sharpness**
- **High Quality BaK4 prism to enhance transmission and resolution**
- **Dual-axis, single body housing with synchronized eye-piece IPD adjustment**
- **Rubber covered body provides protection and grip**
- **Twist-up eyecups**
- **Fine diopter adjustment and fast and easy central fine-focusing**

PAPILIO		
Magnification	6.5x	8.5x
Objective lens diameter	21 mm	21 mm
Type	Porro Compact	
Lens Coating	Multi-coated	
Prism	BaK4	
Twilight Factor	11.7	13.4
Field of View (at 1.000 m)	131 m	105 m
Close focus	0.50 m	0.50 m
Exit Pupil	3.2 mm	2.5 mm
Eye Relief	15 mm	15 mm
Eyecups	Multi-Stop Twist-Up	
Waterproof	No	
Tripod adaptor	With adapter U – PENTAX Code No. 69552	
Size (LxWxH in mm)	114 x 110 x 55	116 x 110 x 55
Weight (g)	290	290
PENTAX Code No.	62215	62216





## PCF WP II

### A ROUGH & TOUGH, WATERPROOF PERFORMER.

This binocular was created for heavy duty applications. The rubber armoured waterproof and nitrogen-purged body withstands weather, dust or rough impact. Add high imaging capability and you have a binocular that will accompany you to the extremes, on land or on water! Includes a powerful 20x60 for long-range or astronomy observations.

- **Durable aluminum die-cast body**
- **Aspherical eye-piece elements**
- **Nitrogen-purged**
- **High Quality BaK4 prism to enhance light transmission and resolution**
- **Long eye-relief for viewing with or without spectacles**
- **Full hard rubber armoured body for maximum protection and grip**
- **Large central focus knob with locking system**
- **3-stop twist-up eyecups**
- **Click-stop diopter adjustment**

PCF WP II				
Magnification	8x	10x	12x	20x
Objective lens diameter	40 mm	50 mm	50 mm	60 mm
Type	Full-size Porro			
Lens Coating	Fully Multi-coated			
Prism	BaK4			
Twilight Factor	17.9	22.4	24.5	34.6
Field of View (at 1.000 m)	110 m	87 m	73 m	38 m
Close focus	3.5 m	5.5 m	5.5 m	8.0 m
Exit Pupil	5 mm	5 mm	4.2 mm	3.0 mm
Eye Relief	20 mm	20 mm	20 mm	21 mm
Eyecups	Multi-Stop Twist-Up			
Waterproof	Yes (JIS Class 6) – Nitrogen purged			
Tripod adaptor	With adapter N – PENTAX Code No. 69553			
Size (LxWxH in mm)	136 x 178 x 76	178 x 183 x 79	178 x 183 x 79	224 x 195 x 85
Weight (g)	850	1,060	1,080	1,400
PENTAX Code No.	65807	65808	65809	65810






# XCF

## AFFORDABLE EXCELLENCE.

The XCF range offers many of the features of more expensive binoculars, with the added benefit of exceptional value. Ruggedly styled with a full-rubber housing, including the extra large central focusing wheel. They feature exceptional optical performance including high quality BaK4 prisms.

- **Durable aluminum die cast body**
- **High Quality BaK4 prism to enhance light transmission and resolution**
- **Fully rubber armoured body**
- **Large central focus wheel**
- **For spectacle wearers: soft rubber eyecups that can easily be folded back**
- **Click-stop diopter adjustment**

### XCF

Magnification	8x	10x	12x	16x
Objective lens diameter	40 mm	50 mm	50 mm	50 mm
Type	Full size Porro			
Lens Coating	Multi-coated			
Prism	BaK4			
Twilight Factor	17.9	22.4	24.5	28.3
Field of View (at 1,000 metres)	143 m	114 m	98 m	61 m
Close focus	6 m	9 m	9 m	10.3 m
Exit Pupil	5.0 mm	5.0 mm	4.2 mm	3.1 mm
Eye Relief	13 mm	13 mm	11 mm	13 mm
Eyecups	Fold-Down			
Waterproof	No			
Tripodadapter	With adapter N – PENTAX Code No.69553			
Size (L x W x H in mm)	131 x 187 x 56	166 x 198 x 56	166 x 198 x 56	166 x 198 x 56
Weight (g)	770	900	900	900
PENTAX Code No.	65791	65792	65793	65794









## UCF XII BRIGHT AND SHARP IN A SLEEK DESIGN.

The UCF range takes a different approach. The dual-axis, inverted porro prism design is compact and light weight. Combine this with aspherical lens elements for edge-to-edge sharpness, BaK4 prisms and multi-coated lenses you get a star performer ideal as a travel companion, for outdoor events or for general purpose usage.

- **Inverted porro prism design**
- **Aspherical lens elements providing edge-to-edge sharpness**
- **High Quality BaK4 prism to enhance transmission and resolution**
- **Dual-axis, single body design with synchronized eye-piece IPD adjustment**
- **Black rubber armouring**
- **Pull-up eyecups**
- **Centrally-located lockable diopter adjustment**

UCF XII		
Magnification	8x	10x
Objective lens diameter	25 mm	25 mm
Type	Porro Compact	
Lens Coating	Multi-coated	
Prism	BaK4	
Twilight Factor	14.1	15.8
Field of View (at 1.000 m)	108 m	87 m
Close focus	1.9 m	1.9 m
Exit Pupil	3.1 mm	2.5 mm
Eye Relief	15 mm	15 mm
Eyecups	Pull-Up Multi-Stop	
Waterproof	No	
Tripod adaptor	With adapter U – PENTAX Code No. 69552	
Size (LxWxH in mm)	115 x 110 x 55	115 x 110 x 56
Weight (g)	300	300
PENTAX Code No.	62211	62212

# UCF ZOOM II

## MAXIMUM VIEWING FLEXIBILITY.

The UCF Zoom II is multi-functional wizard! In one compact and lightweight binocular you have the power to observe with 8 to 16x magnification by simply turning the central wheel. Add to this the aspherical lens elements for edge-to-edge sharpness, BaK4 prisms and multi-coated lenses to enhance brightness & contrast, and voilà, you have the perfect travel companion who won't let you miss a thing!



- **Inverted porro prism design**
- **Aspherical lens elements providing edge-to-edge sharpness**
- **High Quality BaK4 prism to enhance transmission and resolution**
- **Dual-axis, single body design with synchronized eye-piece IPD adjustment**
- **Black rubber armouring**
- **Pull-up eyecups**
- **Centrally-located lockable diopter adjustment**

### UCF ZOOM II

Magnification	8 - 16x
Objective lens diameter	21 mm
Type	Porro Compact
Lens Coating	Multi-coated
Prism	BaK4
Twilight Factor	13.0-18.3
Field of View (at 1.000 m)	87-52 m
Close focus	3 m
Exit Pupil	2.6-1.3 mm
Eye Relief	14-11 mm
Eyecups	Twist-Up Multi-Stop
Waterproof	No
Tripod adaptor	With adapter U – PENTAX Code No. 69552
Size (LxWxH in mm)	111 x 111 x 55
Weight (g)	310
PENTAX Code No.	62217



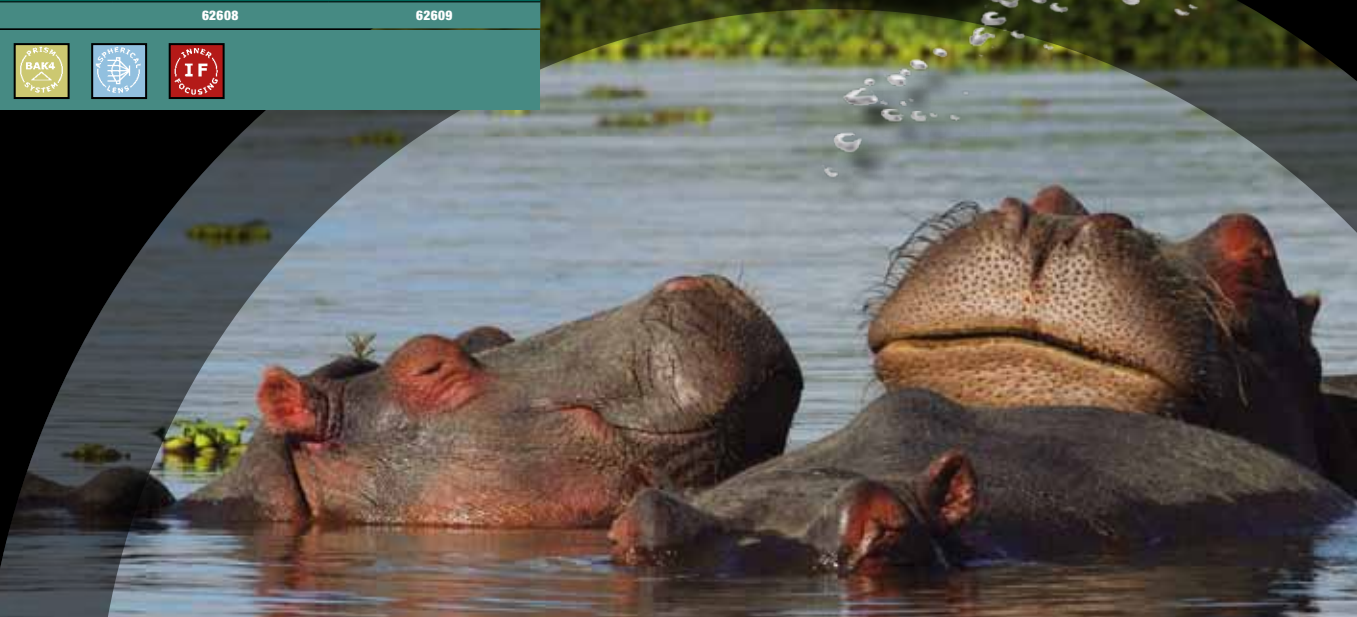
# UCF WP

## THE WATERPROOF WONDER.

The UCF line-up continues with another highlight! We continue with the classic dual-axis and inverted porro prism design which makes it compact and light weight. We also continue to use aspherical lens elements for edge-to-edge sharpness, BaK4 prisms and multi-coated lenses. But we didn't stop there ... we also make it fully waterproof to JIS Class 6 standards! Just so you can tell the difference between other members of the family we gave the body deep, blue-tinted armoured.

- **Inverted porro prism design**
- **Aspherical lens elements providing edge-to-edge sharpness**
- **High Quality BaK4 prism to enhance transmission and resolution**
- **Dual-axis, single body design with synchronised eye-piece IPD adjustment**
- **Deep, blue-tinted rubber armouring for maximum protection and grip**
- **Pull-up eyecups combined with comfortable eye-relief**
- **Centrally-located lockable diopter adjustment**

UCF WP		
Magnification	8x	10x
Objective lens diameter	25 mm	25 mm
Type	Porro Compact	
Lens Coating	Multi-coated	
Prism	BaK4	
Twilight Factor	14.1	15.8
Field of View (at 1.000 m)	108 m	87 m
Close focus	1.9 m	1.9 m
Exit Pupil	3.1 mm	2.5 mm
Eye Relief	15 mm	15 mm
Eyecups	Twist-Up Multi-Stop	
Waterproof	Yes (JIS Class 6)	
Tripod adaptor	With adapter U – PENTAX Code No. 69552	
Size (LxWxH in mm)	116 x 110 x 69	116 x 112 x 69
Weight (g)	350	350
PENTAX Code No.	62608	62609



# UCF R

## LIGHT AND COMPACT WITH OUTSTANDING PERFORMANCE.

Easily recognised by the dual-axis and classic inverted porro prism design, even our entry model has all the features of a star performer: aspherical lens elements for edge-to-edge sharpness, multi-coated lenses for great light transmission. Whether you use it for indoor or outdoor events, you will be pleasantly surprised by the clarity and sharpness of the image ... and surprisingly affordable too.



- **Inverted porro prism design**
- **Aspherical eyepiece lens elements**
- **Dual-axis, single body design with synchronised eye-piece IPD adjustment**
- **Protective rubber housing**
- **Pull-up eyecups**
- **Light weight and compact**

UCF R		
Magnification	8x	10x
Objective lens diameter	21 mm	21 mm
Type	Porro Compact	
Lens Coating	Multi-coated	
Prism	BK7	
Twilight Factor	13.0	14.5
Field of View (at 1.000 m)	108 m	87 m
Close focus	2.8 m	2.8 m
Exit Pupil	2.6 mm	2.1 mm
Eye Relief	13 mm	9.5 mm
Eyecups	Pull-up	
Waterproof	No	
Tripod adaptor	No	
Size (LxWxH in mm)	83 x 110 x 48	80 x 110 x 48
Weight (g)	210	210
PENTAX Code No.	62209	62210





# JUPITER III

## SMALL AND PORTABLE.

There is no excuse not to have binoculars. Because at just 160 grams and particularly small the JUPITER III binoculars are suitable in different situations. BaK4 prisms and multi-coating on the built-in lenses, give this optical mini an exceptionally high contrast-rich, bright view.

JUPITER III is the perfect partner for sporting events, concerts, as well as for hiking and traveling.

- **Multi-coated lenses**
- **Ultra-compact**
- **Inner focus**
- **BaK4 prisms**
- **Diopter correction**

JUPITER III			
Magnification	8x		
Objective lens diameter	21 mm		
Type	Compact reverse porro-prism binocular		
Lens Coating	Multi-coated		
Prism	BaK4		
Twilight Factor	12.96		
Field of View (at 1.000 m)	123 m		
Minimum focus	3.5 m		
Exit Pupil	2.62 mm		
Eye Relief	10 mm		
Eyecups	Rubber		
Tripod adaptor	No		
Size (LxWxH in mm)	83 x 115 x 30		
Weight (g)	160		
Colour	Black	Silver	Green
Accessories	Case, Strap, Cleaning Cloth		
PENTAX Code No.	51028	51029	51036



# PENTAX BINOCULAR SELECTION MATRIX.

PICTOGRAM	PURPOSE AND GENERAL DESCRIPTION	MAGNIFICATION			OBJECTIVE DIAMETER			DCF ED
		6-8x	10-12x	12x more	up to 28mm	28-36mm	42-60mm	
	<b>GENERAL PURPOSE:</b> Reasonably compact, easy to carry and easy to use. No long observations periods.	●●●●	●●●	●●	●●●	●●●●	●●	●●●●
	<b>WILDLIFE OBSERVATION:</b> Use for long distance (safari, nature scenery) Extreme conditions: fully waterproof. Long observation time	●●●	●●●●	●●	●●	●●●	●●●●	●●●●
	<b>TRAVEL / HIKING:</b> Should be compact and light weight. Easy to carry. Preferably fully waterproof.	●●●●	●●●	●●	●●●●	●●●●	●●	●●●●
	<b>BIRD WATCHING:</b> Maximum resolution and contrast. Long Observation time – comfortable viewing. Fully waterproof.	●●●●	●●●	●●	●●	●●●	●●●●	●●●●
	<b>NATURE / FLORA OBSERVATION:</b> Maximum resolution and contrast. Close Focus. Long Observation time at short distance - compact and light weight.	●●●●	●●	●●	●●●●	●●●●	●●	●●●●
	<b>HUNTING:</b> Use for long distance surveying. Extreme conditions; fully waterproof. Easy to handle with gloves. Low-light conditions.	●●●	●●●●	●●●	●●	●●●	●●●●	●●●
	<b>MARINE / WATERSPORT:</b> Fully waterproof. Extreme conditions. Low-light conditions. Comfortable viewing. Full-size. Easy to use.	●●●●	●●	●●	●●	●●	●●●●	●●●●
	<b>OUTSIDE SPORT / EVENTS:</b> Low magnification, easy to focus, compact and light-weight.	●●●●	●●●	●●	●●●	●●●●	●●	●●●●
	<b>ASTRONOMY:</b> High Power, large objective for low light. Use on a tripod.	●●	●●●	●●●●	●●	●●	●●●●	●●●

## BEFORE SELECTING ASK YOURSELF SOME QUESTIONS:

Finding the binocular that best suits your needs is highly personal, and the expertise and help of your PENTAX dealer can be invaluable. However, it is best to ask yourself some questions first, and in doing so this will guide you to the right unit to test and select:

- For what (main) purpose will the binocular be used?
- How important is size and weight?
- Is the binocular to be used in low-light conditions, in rough weather and / or near surroundings of water?
- Will you be using your binocular with spectacles?



**smc Lens Coating**



**BaK4 Prism System**



**Hydrophobic Coating**



**Nitrogen Purged**



**Phase Correcting Coating**



**Aspherical Lens**



**50cm Macro Function**

●●●● most suitable

● least suitable



**JIS 6 Waterproof**



**ED Objective Lens**



**Inner Focussing**



**JIS 4 Water Resistant**



**Dielectric Coating**



**Multi Coated Lens**

**TYPE OF TRIPOD ADAPTER**



**TP-3**

### ROOF PRISM FAMILIES

### PORRO PRISM FAMILIES

DCF SP	DCF BR 9x42	DCF CS	DCF BC 9x32	DCF LV	DCF NV	DCF SW	MARINE 7x50	PAPILIO	PCF WPII	UCF XII	UCF ZOOM II	UCF WP	UCF R	JUPITER III
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34





# SPOTTING SCOPES

SPOTTING SCOPES





## GET FRIENDLY WITH NATURE!

Once nature has taken you in as a friend the whole world opens up for exploration and observation. Hiking to difficult or inaccessible places to witness creatures that don't want to be seen or disturbed is a serious challenge. For those close encounters you crave, and some you don't, a PENTAX spotting scope will be your perfect partner. Spotting scopes are not used exclusively by pro-

fessionals who want to document and publish their findings. Nor is it only the passionate, high-ranking amateur. Actually, PENTAX spotting scopes and eyepieces are there for anyone with a desire to get close, to see detail, to experience beauty.



## PENTAX QUALITY.

Our reputation for perfectly engineered telescopes, used by universities and observatories all over the world, has to be maintained – that is the PENTAX way! The eyepieces used on our spotting scopes are rated as being some of the best in the world because they were originally designed for the exacting standards

of astronomers. This is not just our view! This is what we are told – repeatedly – by professional astronomers and ornithologists. Understandably ... we see no reason to doubt them! We are confident that we can hold our own among the top-end European alternatives.

# PENTAX SPOTTING SCOPE TECHNOLOGY EXPLAINED.

## 1 1.25INCH / 31.7MM EYEPIECE CONNECTOR

The large-sized, 31.7mm (1.25inch) eyepiece connector will give you a serious advantage. This sizeable connector allows you to use high-end eyepieces (from PENTAX or specialist manufacturers) that provide a clearer, brighter and edge-to-edge sharper image. The large receptacle also provides you with a fundamentally more stable basis to use your spotting scope for photography.



## 2 SMC MULTI-LAYER LENS COATING

The PENTAX smc lens coating is renowned in the industry. Not only does this coating improve contrast and resolution – it also optimises light-transmission throughout the whole light spectrum, thereby allowing well-balanced and colour-correct image reproduction.



## 3 FUNCTIONAL HIGH-TECH-DESIGN

PENTAX spotting scopes are built from solid yet lightweight Magnesium-alloy with full body rubber armoring. A built-in retractable lens shade cuts excessive light and protects against the weather elements (standard on all scopes!). No need to worry about rain anyway – all the PF-bodies are fully waterproof and Nitrogen purged (JIS Class 6).



## 4 INNER FOCUSING

The InnerFocus function is critical to low-maintenance and long life guarantee. Exposure to airborne particles and moisture is avoided, thereby ensuring that no outside influences can penetrate the binocular housing and disrupt functionality.



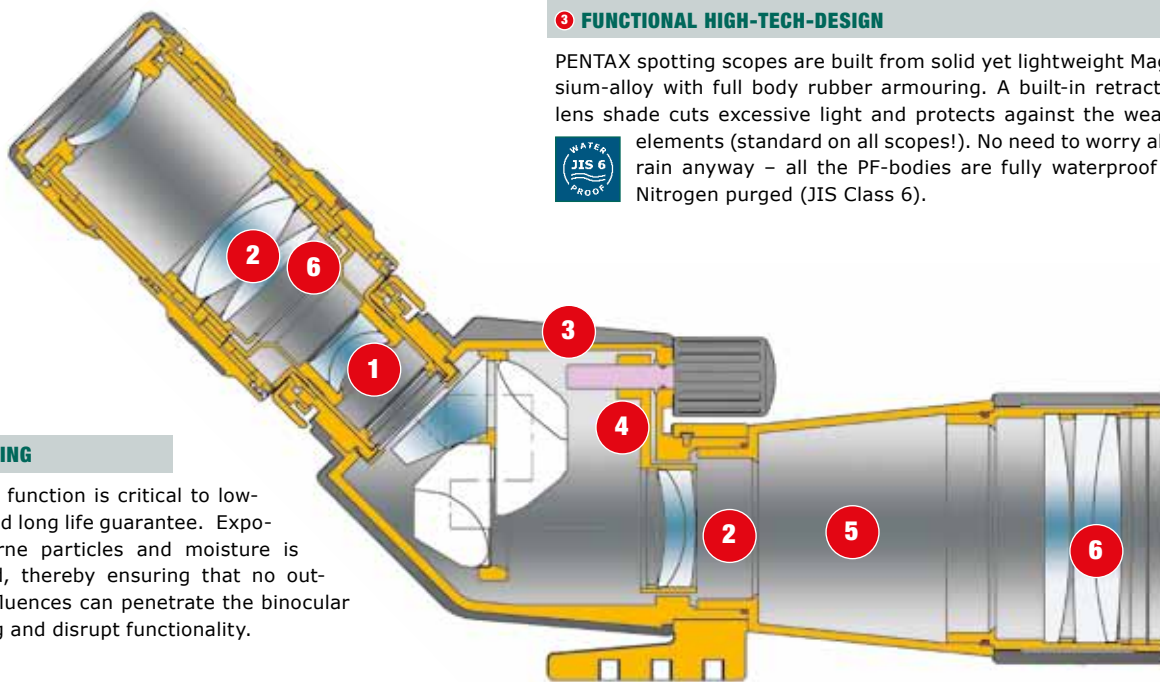
## 5 NITROGEN PURGED

Nitrogen is a chemical element and a colorless, odorless and tasteless gas. It contains little humidity and is therefore used to “purge” binoculars and spotting scopes of the high-humidity air that is part of our environment. Due to the low humidity factor, nitrogen prevents condensation from forming on the internal lenses of optical instruments during phases of rapid temperature change. Also, because nitrogen is purged into the optical instrument at slightly above atmospheric pressure, dust and other minuscule particles are prevented from entering the housing.



## 6 ED-OBJECTIVE WITH LANTHANUM LENS ELEMENTS

The ultimate objective when building top optics is to reproduce the image free from chromatic aberration and absolutely colour correct. This is an absolute must for critical users but can only be achieved by using ED-glass (Extra-low Dispersion) in combination with Lanthanum glass. This sophisticated rare-earth mineral has very low dispersion and favourable refraction values. You will find ED-objective lens elements, in combination with Lanthanum lens elements, on all PENTAX spotting scopes.



# PF-65EDII/65EDA II







## HAPPY TRAILS – CONVENIENCE WITHOUT COMPROMISE.

On off-track walking trails you're often limited in the amount of equipment that you can carry over long distances. The one compromise you do not want to make is in viewing performance – here the PF-65 range is the perfect answer. It was designed with light-weight and compact specifications as a high priority. However, you can still expect the best, such as an ED-Objective lens, smc lens coatings, and a magnesium-alloy body.

- **Lightweight and compact Magnesium-alloy body construction**
- **Extra-low Dispersion (ED) Objective lens-system combined with Lanthanum glass elements for maximum resolution and minimum chromatic aberration**
- **Easy to reach centrally positioned focusing wheel**
- **Durable rubber armoured body provides maximum protection and grip**
- **Multi adjustable tripod socket with a rotating mechanism withlocking screw allowing variable viewing positions**
- **Delivered with field-usage carrying case and PENTAX warranty**
- **Available in 45° angle (EDAII) and straight design (EDII)**
- **Spotting scope and eyepiece available separately or as a kit**



	PF-65EDII	PF-65EDAII
Type	Porro prism straight type	Porro prism 45° angle type
Objective lens / Lens Elements	65 mm ED-glass with five lens elements in three groups	
Focal Length	390 mm	
Effective aperture	f/6	
Attachment Diameter	1.25" (31.7 mm)	
Focusing range	approx. 5 m to infinity	
Eyepiece Ring	Collar	
Colour	black	
Waterproof	1 m depth (JIS Class 6) - Nitrogen purged	
Accessories	Lens cap, carrying case	
Weight (g)	1,050	1,070
Size (L x W x H)	270 x 115 x 85	270 x 120 x 85
PENTAX Code No.	70966	70967





# PF-80ED/80EDA









## HIGH-END PERFORMANCE TERRESTRIAL VIEWING.

The PF-80 enables hours of comfortable viewing without distortion or chromatic aberrations and with maximum resolution. Its clarity and brightness are “clearly” the result of the 80mm ED-Objective lens and Lanthanum glass elements – in addition to our smc lens coatings. The sum of all these high-end components is our contribution to the pinnacle of the market with no compromises. By adding a high-end digital SLR with an adaptor you are ready for a photo safari!

- **Durable magnesium-alloy body construction**
- **Built-in retractable lens shade**
- **Extra-low Dispersion (ED) Objective lens system combined with Lanthanum glass elements for maximum resolution and minimum chromatic aberration**
- **Durable rubber armoured body provides maximum protection and grip**
- **Multi adjustable tripod socket with a rotating mechanism with locking screw allowing variable viewing positions**
- **Delivered with field-usage carrying case and PENTAX warranty**
- **Available in 45° angle (EDA) and straight design (ED)**
- **Spotting scope and eyepiece available separately or as a kit**



	PF-80ED	PF-80EDA
Type	Porro prism straight type	Porro prism 45° angle type
Objective lens / Lens Elements	80 mm ED-glass with three lens elements in three groups	
Focal Length	500 mm	520 mm
Effective aperture	f/6.25	f/6.5
Attachment Diameter	1.25" (31.7 mm)	
Focusing range	approx. 5.8 m to infinity	
Eyepiece Ring	Collar	
Colour	black	
Waterproof	1 m depth (JIS Class 6) - Nitrogen purged	
Accessories	Lens cap, carrying case	
Weight (g)	1,400	1,600
Size (L x W x H)	397 x 120 x 98	415 x 135 x 100
PENTAX Code No.	70930	70950



40

# PF-100ED

## PROFESSIONAL LEVEL.

The PF-100ED is without doubt the best you can get ... short of building your own! The 100mm ED-Objective lens and Lanthanum glass gather light with spectacular resolution and clarity. Combined with smc lens coatings and the superior XW eyepieces, you will enjoy razor-sharp edge-to-edge images – not only for terrestrial and also for lunar and planetary observation. By simply adding a PENTAX SLR camera and adapter, the PF-100ED transforms into a formidable telephoto lens for fine detail photography.



### PF-100ED

Type	Porro prism straight type
Objective lens / Lens Elements	100 mm ED-glass with three lens elements in three groups
Focal Length	625 mm
Effective aperture	f/6.25
Attachment Diameter	1.25" (31.7 mm)
Focusing range	approx. 8.5 m to infinity
Eye-piece Ring	Collar
Colour	black
Waterproof	1 m depth (JIS Class 6) - Nitrogen purged
Accessories	Lens cap, carrying case
Weight (g)	2,600
Size (L x W x H)	510 x 134 x 117
PENTAX Code No.	70940

- Durable magnesium-alloy body construction
- Built-in retractable lens shade
- Extra-low Dispersion (ED) Objective lens system combined with Lanthanum glass elements for maximum resolution and minimum chromatic aberration
- Large focusing wheel allowing effortless fine focusing
- Durable rubber armoured body provides maximum protection and grip
- Multi adjustable tripod socket with a rotating mechanism with locking screw allowing variable viewing positions
- Delivered with field-usage carrying case and PENTAX warranty



# O-GPS1 with ASTROTRACER

## DIGISCOPING WITH A NEW DIMENSION.



By mounting the O-GPS1 onto the hotshoe of a PENTAX K-5, K-r or 645D DSLR camera\*, the user can record the latitude, longitude, altitude, universal time coordinated (UTC) and aspect of shooting locations onto captured images. Image files carrying GPS location data, can be used to track shooting locations and review location data on a PC. By coupling GPS data with the camera's SR (Shake Reduction) system, the unit offers a range of unique, advanced applications, including ASTROTRACER, Simple Navigation and Electronic Compass.

Using mapping software such as Google Earth™, the user can recall shooting locations and directions on a map.

\* Some of the O-GPS1's functions may not be available when used with the 645D. To use the O-GPS1 properly with a compatible PENTAX digital SLR, the camera's firmware must be updated to the latest version.

Note: When the O-GPS1 is used in locations where it cannot receive signals from GPS satellites, location data may be in error or missing.

Note: Google and Google Earth are either registered trademarks or trademarks of Google Inc.

Note: All other brands or product names are trademarks or registered trademarks of their respective companies.

- **GPS function to record location data**
- **ASTROTRACER function for astronomical photography**
- **Simple Navigation to indicate location data to a destination**
- **Electronic Compass function to indicate and record direction**
- **Simplified weather-resistant construction for use in light rain**
- **Independent power source (one AAA-size battery) to eliminate the need for power supply from the camera body**

PENTAX Code No. 39012



# PENTAX EYEPIECES

## COMPACT PRECISION ENGINEERING.

We at PENTAX believe that the eyepiece is crucial to the overall optical performance of spotting scopes. That is why our eyepieces are engineered to the exacting standards originally required by the astronomy community. Furthermore, that is why we made the 1.25 inch (31.7mm) connector our standard. We are among an elite few who use rare materials like Lanthanum glass to optimise light transmission for unsurpassed clarity and brightness. Successfully, it seems, since astronomers and ornithologists agree that PENTAX eyepieces are among the best available world-wide.

### XW-SERIES + XL-ZOOM



The absolute high-end in eyepieces: from beginning to end fully equipped to provide an edge-to-edge razor sharp image, free of aberration and with maximum resolution and clarity.

- **Up to 8 lens elements in 4 groups. Fully blacked inside to minimize internal reflections**
- **Extra lens elements to reduce spherical aberration of the human eye (the so called "black-out" effect)**
- **Maximum usability and viewing comfort with 70° apparent angle of view\***
- **Eye relief at a comfortable 20mm, also eyewear users can have a comfortable view**
- **JIS 6 weatherproof so well protected against wet (outdoor) conditions or night-time dew**
- **Twist-up rubber eyecup**

\* except Zoom

### XF-SERIES



We can economise but we will never compromise our optical quality. The XF-series, in conjunction with the PF-65EDII/65EDAII, offers excellent value for money.

- **6 lens elements in 4 groups. Full blacked inside to minimize internal reflections**
- **Optimal usability and viewing comfort with a 60° apparent angle of view\***
- **Eye relief up to a comfortable 18mm**
- **Comfortable soft rubber eyecup**

\* except Zoom



# SPOTTING SCOPE + EYEPIECE SELECTION MATRIX.

	<b>XF ZOOM</b>	<b>XF 8.5</b>	<b>XF 12</b>	<b>XL ZOOM</b>	<b>XW 7</b>	<b>XW 10</b>	<b>XW 14</b>	<b>XW 20</b>
<b>PF-65EDII/65EDall</b>								
<b>Magnification</b>	20–60x	46x	32.5x	16–48x	55.5x	39x	28x	19.5x
<b>Focal length (mm)</b>	6.5–19.5	8.5	12.0	8–24	7	10	14	20
<b>Apparent Angle of view (degrees)</b>	42–60	60	60	38–60	70	70	70	70
<b>Field of view (at 1,000 metres)</b>	37–17	22	32	40–21	21	31	44	61
<b>Exit Pupil (mm)</b>	3.2–1.1	1.4	2.0	4.0–1.4	1.2	1.7	2.4	3.3
<b>Eye Relief (mm)</b>	11–15	18	18	18–22	20	20	20	20
<b>Total weight scope + eyepiece (g)</b>	1,310	1,220	1,225	1,620	1,460	1,460	1,435	1,425
<b>PENTAX Code No.</b>	70530	70531	70532	70509	70513	70514	70515	70516
<b>PF-80ED</b>								
<b>Magnification</b>	26–78x	59x	42x	20–60x	71x	50x	36x	26x
<b>Focal length (mm)</b>	6.5–19.5	8.5	12.0	8–24	7	10	14	20
<b>Apparent Angle of view (degrees)</b>	42–60	60	60	38–60	70	70	70	70
<b>Field of view (at 1,000 metres)</b>	33–17	17	26	33–17	17	24	35	47
<b>Exit Pupil (mm)</b>	3.0–1.0	1.4	1.9	4.0–1.3	1.1	1.6	2.2	3.1
<b>Eye Relief (mm)</b>	11–15	18	18	18–22	20	20	20	20
<b>Total weight scope + eyepiece (g)</b>	1,640	1,550	1,555	1,950	1,790	1,790	1,765	1,755
<b>PENTAX Code No.</b>	70530	70531	70532	70509	70513	70514	70515	70516
<b>PF-80EDA</b>								
<b>Magnification</b>	27–81x	61x	43x	21–63x	74x	52x	37x	27x
<b>Focal length (mm)</b>	6.5–19.5	8.5	12.0	8–24	7	10	14	20
<b>Apparent Angle of view (degrees)</b>	42–60	60	60	38–60	70	70	70	70
<b>Field of view (at 1,000 metres)</b>	28–13	16.5	24	31–16.5	16.5	24	33	45
<b>Exit Pupil (mm)</b>	3.0–1.0	1.3	1.8	3.8–1.3	1.1	1.6	2.2	3.0
<b>Eye Relief (mm)</b>	11–15	18	18	18–22	20	20	20	20
<b>Total weight scope + eyepiece (g)</b>	1,840	1,750	1,755	2,150	1,990	1,990	1,965	1,955
<b>PENTAX Code No.</b>	70530	70531	70532	70509	70513	70514	70515	70516
<b>PF-100ED</b>								
<b>Magnification</b>	32.5–97.5x	74x	52x	26–78x	90x	62x	44x	32x
<b>Focal length (mm)</b>	6.5–19.5	8.5	12.0	8–24	7	10	14	20
<b>Apparent Angle of view (degrees)</b>	42–60	60	60	38–60	70	70	70	70
<b>Field of view (at 1,000 metres)</b>	22.5–11	14	21	26–14	14	19	28	38
<b>Exit Pupil (mm)</b>	3.0–1.0	1.4	1.9	3.8–1.3	1.1	1.6	2.3	3.1
<b>Eye Relief (mm)</b>	11–15	18	18	18–22	20	20	20	20
<b>Total weight scope + eyepiece (g)</b>	2,840	2,750	2,755	3,150	2,990	2,990	2,965	2,955
<b>PENTAX Code No.</b>	70530	70531	70532	70509	70513	70514	70515	70516

44



## FASCINATION WITH NATURE – OBSERVE AND RECORD.



PF-CA35 ADAPTER

Once on a fieldtrip the one thing you want to avoid is, once that rare bird is finally in sight, not be able to record or share this event with others. Digiscoping allows you to use your spotting scope as a telephoto lens. This translates into less weight to carry around and a lot less money spent on a real telephoto lens. PENTAX is one of the few brands who also design, engineer and manufacture Digital SLR cameras. So we are in an exceptional position to offer you the perfect package: spotting scope, adapter and D-SLR. You don't have to go far to get what you want!

### Digiscoping with an SLR Camera

The PF-CA35 allows you to transform your spotting scope from an observation device into a high quality telephoto lens. This solidly built adapter has a total of 5 lenses in 4 groups, all of them fully multi-coated, resulting in brilliant edge to edge sharpness with the finest detail and true colour image reproduction. The design of the focus system is such that you can easily exchange the adapter and camera for an eyepiece, without having to readjust scope settings.

### Technical details

- Camera connector PENTAX-K
- Size 59x149mm
- Weight: 250g
- Works best on a PF-80 or PF-100 scope
- Also compatible with EF and F bayonet mounts



## PRACTICE MAKES PERFECT – SOME VALUABLE TIPS.

It is important to remember digiscoping is an added bonus to your field expertise. To take successful pictures, however, requires practice, practice, and more practice! When getting started, set up your equipment in the back garden and simply shoot a lot of pictures. Try to work with different light conditions and – very important – take tons of pictures. Keep in mind that you rarely get that perfect picture with maximum magnification settings of camera and scope. Sometimes less is more! Also, use a good stable tripod and have extra sets of batteries and memory cards handy. Last, but not least, always use a remote control or delayed shutter release for sharp images.

### IN COMBINATION WITH DSLR AND ADAPTER SPOTTING SCOPES BECOME HIGH-POWER TELEPHOTO LENSES

	Focal length	Aperture Ratio	Angle of View	Min. Focusing Distance
PF-100ED	1,910 mm	1:12.5	1.3°	+/- 9.2 m
PF-80ED <sub>A</sub>	1,530 mm	1:12.5	1.6°	+/- 6.5 m
PF-80ED	1,530 mm	1:12.5	1.6°	+/- 6.5 m
PF-65ED <sub>A</sub>	1,190 mm	1:12	2.1°	+/- 5.4 m
PF-65ED	1,190 mm	1:12	2.1°	+/- 5.4 m

### Digiscoping with a Compact Camera

The UNIVERSAL ADAPTER with CDC digital camera mount allows attachment of almost any compact digital camera (regardless of manufacturer) to the full range of PENTAX spotting scopes using XL and XF Zoom eyepieces. The extremely practical and easily adjustable design of the adapter, along with the high quality optics of the PENTAX scopes, makes this the perfect digiscoping tool. Adjust the camera into the correct position and take that snapshot without having to carry heavy D-SLR equipment. Fits nearly every compact digital camera.



UNIVERSAL ADAPTER with CDC mount on XL Zoom

The De Wildt Cheetah and Wildlife Trust, situated in the foothills of the Magaliesberg in South Africa, was established in 1971 with the aim of breeding endangered and rare species for release into the wild. In the Autumn of 2007, in "a race against extinction", PENTAX Europe began its support of the Trust's efforts and made a modest contribution by adopting a baby cheetah by the name of Umfana. At the time of adoption, Umfana was about 3 months old. We encourage everyone to participate in this, or similar endeavours, to preserve a little piece of the beauty and natural splendour that surrounds us.



**The De Wildt Cheetah  
and Wildlife Trust**

[www.dewildt.org.za](http://www.dewildt.org.za)



On my travels throughout the EMEA region I come across many nature conservation efforts worthy of support. However, none as worthy as the David Sheldrick Wildlife Trust situated on the outskirts of Nairobi. Elephants have always been high on my list of lovable animals! Baby elephants, all orphaned by poachers, encroaching civilisation or even natural causes, are lovingly cared for and raised by many, very dedicated individuals at the foundation. Raising these helpless babies to the point where they can be reintegrated into a willing herd is not only a logistical feat, but also a financial burden. I therefore decided to become a loving foster parent of Shukuru, who was found trapped in a manhole when she was only 3 days old. This is her!

Christoph Brunen  
Manager Business Unit Sport Optics  
PENTAX Europe Imaging Systems S.A.S.

[www.sheldrickwildlifetrust.org](http://www.sheldrickwildlifetrust.org)



### DESIGN CREDITS

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Ann Kathrin Bach, Julia Brodersen, Sarah Fröhlich and Manuela Grund

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Sarah Godet and Guido Harbusch

YOUR DEALER:

# PENTAX

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