



**BENRO®**

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**BENRO®**  
OPTICAL FILTER

Decided the first light in your picture  
BENRO filter products catalog

**BENRO®**

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BENRO optical filters were developed by BENRO and Macgroup who has forty years professional experience in research and development of photography in the United States, and the optical expert team.

The most proud of is the wisdom, and creatively of BENRO experts team put forward the ultra low chromatic aberration new concept, named by ULCA coating technology, to guarantee the authentic of the lens, as to realize high degree of color reproduction. The ULCA low color multi-layer coating process to re-establish a revolutionary optical filter coating new standard and provides high spectral transmittance and low reflectivity. Can reduce the glare. A balanced reflection spectrum can reduce more impact on image than the traditional coating. Perfect to restore the color of the image.

BENRO polarizer adopts high definition optical manufacturing technology innovation, reduce the effect of lens by agglutination deformation, to ensure the consistency of the light after filter into the lens, provide HD image.

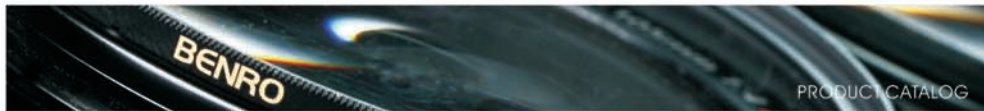
BENRO optical expert team innovative the polarizer for mirrorless, and first publish in China.

Innovative ultra-thin high-end polarizer filter metal frame beyond the lens is only 3mm; minimize dark corners caused by the filter, suitable for ultra-wide-angle filter.

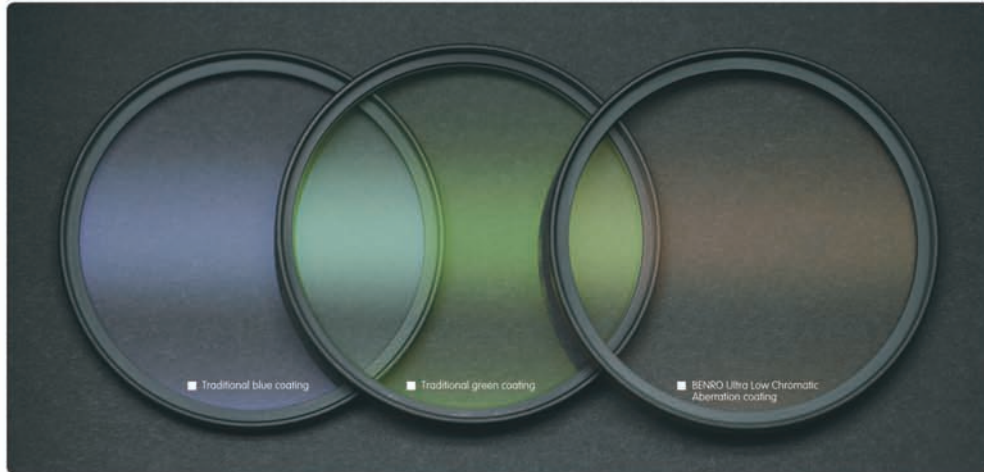
Patented ultra-thin variable ND filter, use the ultra-thin HD lenses, the patented structure provides the limited function, effectively prevent the occurrence of the reticle, at the same time also can use the original lens cover and hood.

The Filter ring chose high quality aviation aluminum, the casing outside the metal materials by high precision CNC lathe processing, surface aerosol extinction anodic oxidation treatment; effectively prevent reflected light from the frame. Whereas high-end SHD series adopts the high quality copper ring, ensure that the filter solid and reliable, make camera lens and ring had stronger impact resistance.

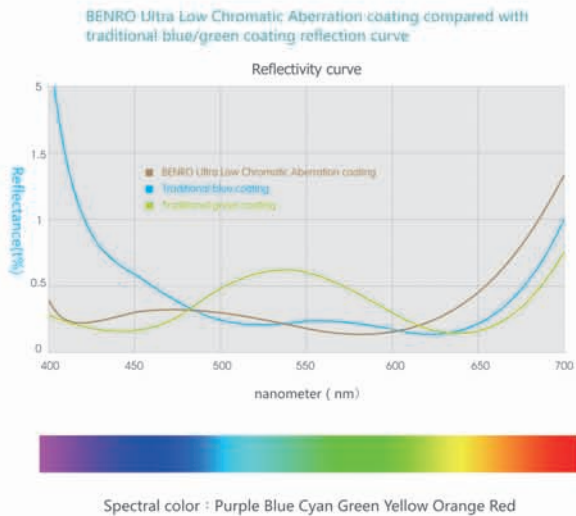




### Ultra Low Chromatic Aberration-ULCA



Coating reflection show the colors of the spectrum, traditional green, blue coating reflect more green and blue light so shows green and blue color, Ultra Low Chromatic Aberration coating reflectance fairly balance, close to colorless. Compared with other filters, ultra low chromatic aberration coating used on the lens color style influence less.



**Brown curve:** BENRO Ultra Low Chromatic Aberration coating  
Design by Germany coating experts,  $R_{max}-R_{min}<0.45R_{max}$   
Around 680nm, coating color close to colorless

**Blue Curve:** Traditional blue coating  
 $R_{max}-R_{min}>0.9$   $R_{max}$  Around 420nm, coating shows blue color

**Green Curve:** Traditional green coating  
 $R_{max}-R_{min}>0.6$   $R_{max}$  Around 540nm, coating shows green color.

BENRO Ultra Low Chromatic Aberration compared with other traditional coating system, Straight uniform reflectance curve, curve has no obvious bulge, no obvious reflection band is too high, few partial color, also has very low reflectance.

Notes:  $R_{max}$ - maximum reflectance  $R_{min}$ - minimum reflectance

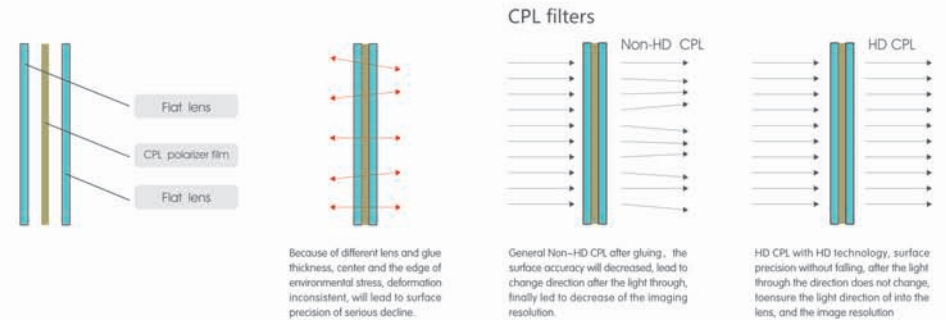


BENRO filter used Shimadzu UV 2550 spectrophotometer test pass rate and reflectivity in order to assure quality.



### Super high definition optical manufacturing technology-HD

The modern optical filters, polarizer and variable ND all use glued lens, complex gluing process, the lens and glue have different characteristics. The glue solidified in all directions a huge impact stress on the lens surface accuracy, resulting in deformation of the lens. Because the lens effect, influence through the angle of the light, impact of light to reach the light-sensitive chip, image quality dropped significantly. The introduction of high-definition optical manufacturing process to solve this problem, lens distortion is corrected, the light incident direction to move forward, thus lossless image quality.



BENRO CPL-HD and NDX-HD all test by detection precision parallel light pipe, in order to ensure the quality

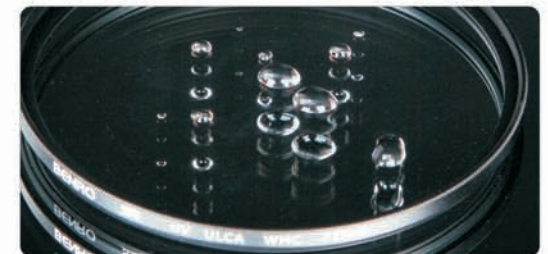


### Super-hard scratch-resistant-WMC



### Water and Oil Repelling-WMC

Using the latest ultra-smooth surface to enhance water and oil repellency processing technology, with super-hard anti-scratch properties will not have any influence on imaging quality, even if water or oily be soiled, stained also can remove easily.





# SHD

SUPER HIGH DIGITAL



SHD series represents BENRO the best optical technology, this series filter is the top range of optical field, has the following characteristics:

- ◆ High quality optical material
- ◆ ULCA Multi-Coating
- ◆ WMC coating provides scratch-resistant, water and oil repelling
- ◆ High-definition optical manufacturing process
- ◆ Edge coated black optically flat glass
- ◆ Rugged Black Brass Filter Ring

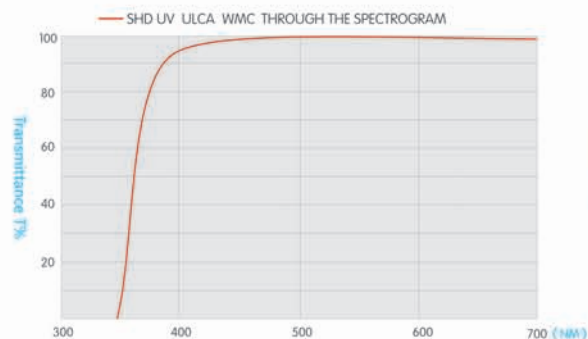
UV SHD UV ULCA WMC

CPL SHD CPL-HD ULCA WMC / SLIM



# UV SHD UV ULCA WMC

BENRO SHD UV ULCA WMC filter protects front lens element from damage; UVC optical glass absorbs harmful UV rays to minimize haze (Cut UV rays wavelength < 370nm); 16 layers original ULCA multi-coating – decreases flare and enhanced output natural image (Average Transmission > 99% @ 420–680nm); WMC coating provides scratch-resistant, Water and oil repelling; Edge coated black optically flat glass; Rugged black brass filter ring.



Tave>99.99% @ 420–680nm T50% @ 370 ± 10nm Tmax < 1.0% @ 300–345nm (measured data)  
 Notes: Tave – transmittance, T% – transmittance, T50% – 50% transmittance, Tmax – Transmittance maximum peak



APPLICABLE DIAMETER RANGE 49 52 55 58 62 67 72 77 80 82

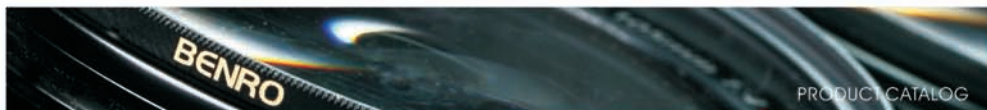


BEFORE



AFTER





## CPL SHD CPL-HD ULCA WMC / SLIM

BENRO SHD CPL-HD ULCA WMC/SLIM filter used ultrathin glass 1.6mm and 3.0mm thin ring; HD technology made superior flatness of glass enhanced output sharp images; 16 layers original ULCA multi-coating – decreases flare and enhanced natural image; Edge coated black optically flat glass; ULCA coating provides scratch-resistant, Water and oil repelling; Greater color and tonal saturation; Rugged black brass filter ring.



Ultra-thin contrast figure



APPLICABLE DIAMETER RANGE 49 52 55 58 62 67 72 77 80 82



BEFORE



AFTER



## SD

SUPER DIGITAL

BENRO SD series of high-quality filter, is based on the traditional optical manufacturing process, through technology innovation to launch the new products, is the advanced filter product, and has the following characteristics:

- ◆ High quality optical material
- ◆ Part of the lens using ULCA coating
- ◆ Provides scratch-resistant, water and oil repelling
- ◆ High definition optics manufacturing technology
- ◆ Advanced anti-reflective nanometer-coating
- ◆ High-precision high-quality aviation aluminum frame

UV SD UV ULCA WMC

CPL SD CPL-HD WMC / SLIM

NDX SD NDX-HD LIMIT ULCA WMC

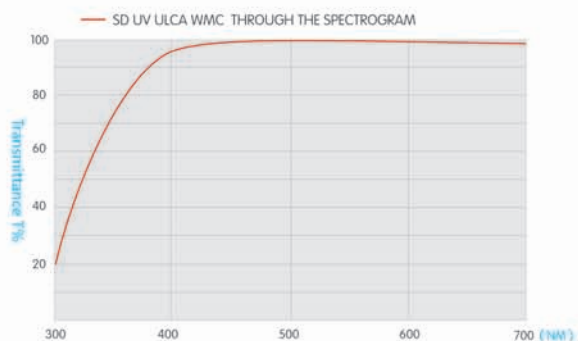
ND SD ND WMC





## UV SD UV ULCA WMC

BENRO SD UV ULCA WMC filter protects front lens element from damage; BENRO 16 layers original ULCA multi-coating—decreases flare and enhanced output natural image (Average Transmission>99.0%@420–680nm); WMC coating provides scratch-resistant, water and oil repelling; Toughened glass resist shocks to lens; Edge coated black optically flat glass; Rugged black aluminum alloy filter ring.



Tave>99.45%@420–680nm (measured data)  
Notes: Tave—transmittance, T%—transmittance 150%–50%transmittance, Tmax— Transmittance maximum peak

APPLICABLE DIAMETER RANGE 49 52 55 58 62 67 72 77 80 82



BEFORE



AFTER



## CPL SD CPL-HD WMC / SLIM

BENRO SD CPL–HD WMC/SLIM filter used 1.6mm ultra thin glass and 3.0mm thin ring .HD technology made superior flatness of glass enhanced output sharp images; 12 layers AR multi-coating decreases internal flare; Edge coated black optically flat glass; Greater color and tonal saturation; WMC coating provides scratch-resistant, water and oil repelling; Rugged black aluminum alloy filter ring



APPLICABLE DIAMETER RANGE 49 52 55 58 62 67 72 77 80 82

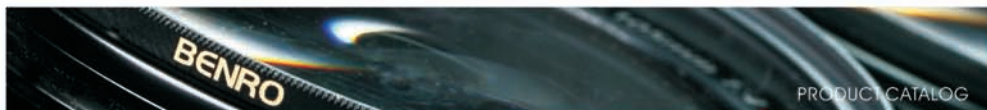


BEFORE



AFTER





## NDX SD NDX-HD LIMIT ULCA WMC

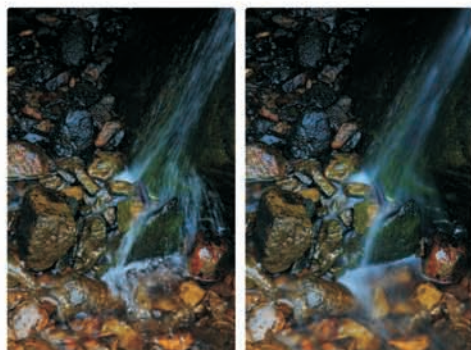
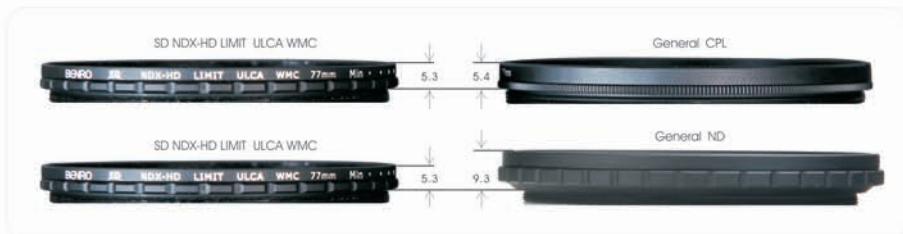
SD NDX-HD LIMIT ULCA WMC patent ultra-thin variable ND lens, use the ultra-thin HD lens, the patent structure provides the limit function, effectively prevent the occurrence of the relic.

Ultra-thin ring is half thickness of general NDX, nearly the same as general CPL, can use the original lens and hood at the same time minimum reduce the generation of dark corners.

- ◆ Provides 1 to 4 stops of neutral density
- ◆ Rotating ring to choose degree of ND
- ◆ Min degree and max degree limited
- ◆ HD technology made superior flatness of glass enhanced output sharp images.
- ◆ Total 29 Layers original ULCA multi-coating
- ◆ Edge coated black optically flat glass
- ◆ WMC coating provides scratch-resistant, water and oil repelling
- ◆ Rugged black aluminum alloy filter ring



### Ultra-thin contrast figure



BEFORE

AFTER



## ND SD ND WMC

BENRO SD ND series filter allows you to control the exposure time, DND optical glass evenly absorbs visible rays - Enhanced output low chromatic aberration natural image; 12 layers AR multi-coating decreases internal flare by glass; WMC coating provides scratch-resistant, water and oil repelling; Rugged black aluminum alloy filter ring; Square filter for the 100 x100, thickness 2.0 mm is applicable to general filter frame on the market.



Exposure Reducing Light by a Factor of 4  
(0.6ND - 2 Stops)

Exposure Reducing Light by a Factor of 8  
(0.9ND - 3 Stops)

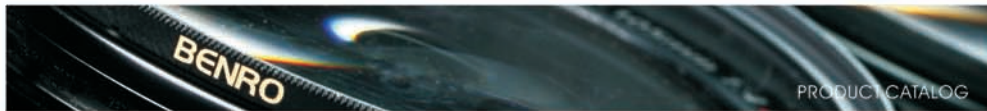
Exposure Reducing Light by a Factor of 16  
(1.2ND - 4 Stops)

Exposure Reducing Light by a Factor of 1024  
(3.0ND - 10 Stops)



BEFORE

AFTER



# PD

PROFESSIONAL DIGITAL

PD series is the perfect combination of quality and price, high quality products. Able to provide the same excellent optical quality, suitable for professional photographers, has the following characteristics:

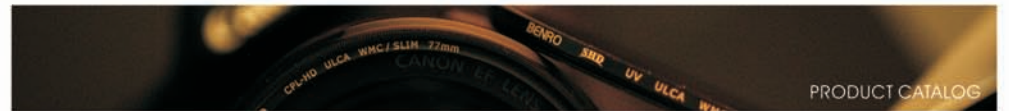
- ◆ High quality optical material
- ◆ Multi-coating decreases internal flare
- ◆ High definition optics manufacturing technology
- ◆ Edge coated black optically flat glass
- ◆ WMC coating provides scratch-resistant, water and oil repelling
- ◆ Rugged black aluminum alloy filter ring

UV
PD UV MC

UV
PD UV WMC

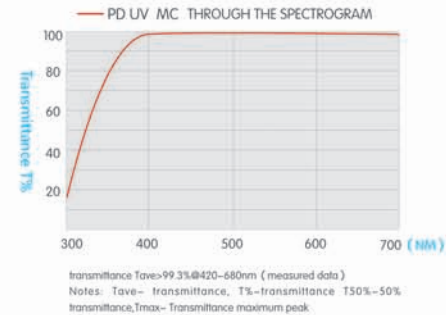
CPL
PD CPL-HD WMC

POLARIZER FOR MIRRORLESS



# UV PD UV MC

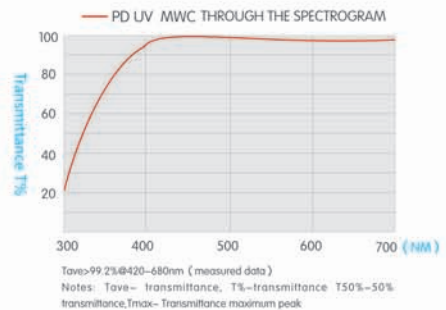
BENRO PD UV MC Filter protects front lens element from damage; 14 Layers AR multi-coating decreases internal flare by glass (Average Transmission>99%@420-680nm);



APPLICABLE DIAMETER RANGE	37	40.5	43	46	49	52	55	58	62	67	72	77	80	82
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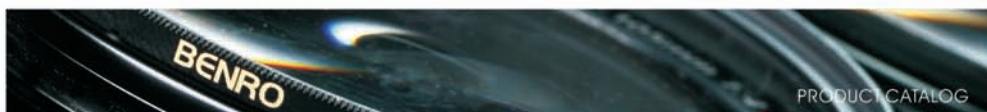
# UV PD UV WMC

BENRO PD UV WMC filter protects front lens element from damage; 16 layers AR multi-coating decreases internal flare by glass (Average Transmission>98.5%@420-680nm); WMC coating provides scratch-resistant, water and oil repelling.



APPLICABLE DIAMETER RANGE	37	40.5	43	46	49	52	55	58	62	67	72	77	80	82
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## CPL PD CPL-HD WMC

BENRO PD CPL-HD WMC filter HD technology made superior flatness of glass enhanced output sharp images; Greater color and tonal saturation; WMC coating provides scratch-resistant, water and oil repelling; edge coated black optically flat glass; Rugged black aluminum alloy filter ring.



BEFORE

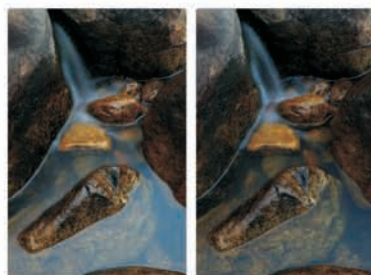
AFTER



APPLICABLE DIAMETER RANGE 37 40.5 43 46 49 52 55 58 62 67 72 77 80 82

## POLARIZER FOR MIRRORLESS PD PL-HD WMC FOR MIRRORLESS

BENRO PD PL-HD WMC FOR MIRRORLESS filter design specially for mirrorless system; HD technology made superior flatness of glass enhanced output sharp images; Greater color and tonal saturation; WMC coating provides scratch-resistant, water And oil repelling ; Rugged black aluminum alloy filter ring; Edge coated black optically flat glass.



BEFORE

AFTER

APPLICABLE DIAMETER RANGE 37 40.5 43 46 49



## UD UNIVERSAL DIGITAL

UD series is general filter, superior performance, has the following characteristics:

- ◆ High quality optical material
- ◆ High-definition optical manufacturing process
- ◆ Edge coated black optically flat glass
- ◆ Rugged black aluminum alloy filter ring

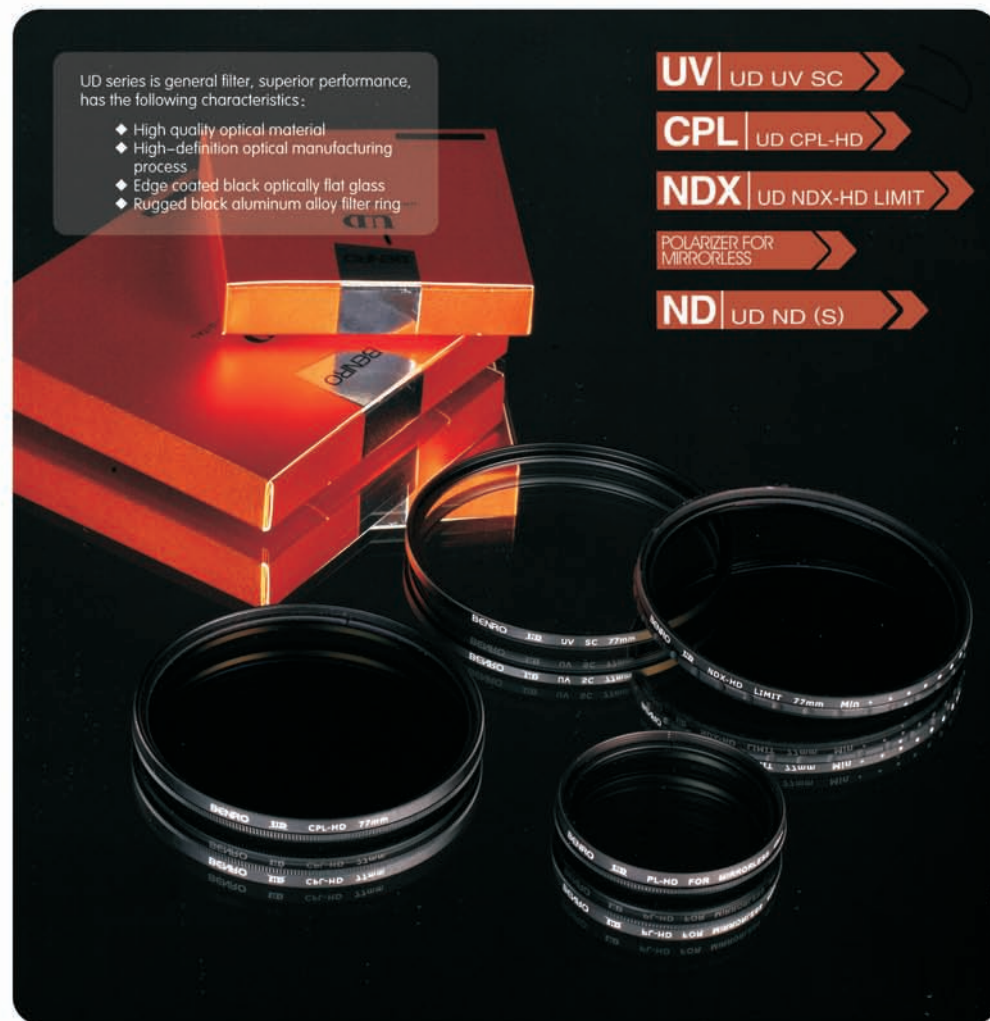
UV UD UV SC

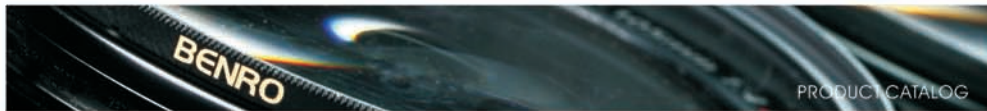
CPL UD CPL-HD

NDX UD NDX-HD LIMIT

POLARIZER FOR MIRRORLESS

ND UD ND (S)

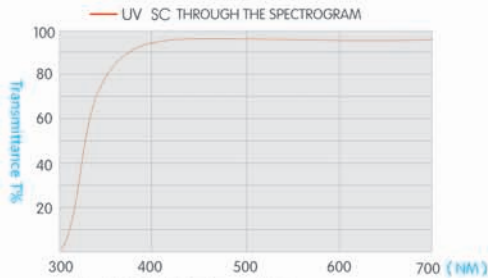




PRODUCT CATALOG

## UV UD UV SC

BENRO UD UV SC filters protect front lens element from damage; Traditional high-tech single layer coating; High transmission rate: Tave>95.5%@420-680nm; Rugged black aluminum alloy filter ring; Thin glass and thin ring; Decreases internal flare on sensors.



APPLICABLE DIAMETER RANGE 37 40.5 43 46 49 52 55 58 62 67 72 77 80 82

## CPL UD CPL-HD

Superior flatness of glass enhanced output sharp images; Rugged black aluminum alloy filter ring; Edge coated black optically flat glass; Greater color and tonal saturation



BEFORE AFTER



APPLICABLE DIAMETER RANGE 37 40.5 43 46 49 52 55 58 62 67 72 77 80 82



PRODUCT CATALOG

## NDX UD NDX-HD LIMIT

BENRO UD NDX-HD LIMIT innovative products based on traditional variable ND, the patented variable ND frame thickness is the same as common CPL, can use the original lens and hood at the same time minimum reduce the generation of dark corners. Patents structure provide limit function, without reticle.

- ◆ Provides 1 to 4 stops of neutral density
- ◆ Rotating ring to choose degree of ND
- ◆ Min degree and Max degree limited
- ◆ HD technology made superior flatness of glass enhanced output sharp images
- ◆ Edge coated black optically flat glass
- ◆ Rugged black aluminum alloy filter ring



APPLICABLE DIAMETER RANGE 67 72 77 80 82

## POLARIZER FOR MIRRORLESS UD PL-HD FOR MIRRORLESS

UD PL-HD FOR MIRRORLESS filter design specially for mirrorless system; HD technology made superior flatness of glass enhanced output sharp images; Edge coated black optically flat glass; Greater color and tonal saturation; Rugged black aluminum alloy filter ring.



APPLICABLE DIAMETER RANGE 37 40.5 43 46 49

## ND UD ND (S)

BENRO UD ND (S) filter allows you to effectively control the exposure time, aperture cuts; DND Optical Glass evenly absorbs visible rays - Enhanced Output Low Chromatic Aberration natural image.

UD ND4 (S)



Exposure Reducing Light by a Factor of 4 (0.6ND - 2 Stops)

UD ND8 (S)



Exposure Reducing Light by a Factor of 8 (0.9ND - 3 Stops)

UD ND16 (S)



Exposure Reducing Light by a Factor of 16 (1.2ND - 4 Stops)

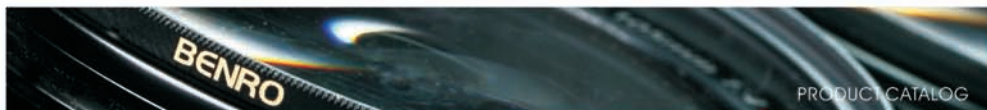
UD ND1000 (S)



Exposure Reducing Light by a Factor of 1024 (3.0ND -10 Stops)

RANGE OF APPLICATION 100X100





BENRO FILTER PRODUCTS STRUCTURE

Series	Specifications	Models	Filter sizes													100x100			
			37	40.5	43	46	49	52	55	58	62	67	72	77	80		82		
SHD	UV	SHD UV ULCA WMC					●	●	●	●	●	●	●	●	●				
	CPL	SHD CPL-HD ULCA WMC / SLIM					●	●	●	●	●	●	●	●	●				
	UV	SD UV ULCA WMC					●	●	●	●	●	●	●	●	●				
	CPL	SD CPL-HD WMC / SLIM					●	●	●	●	●	●	●	●	●				
SD	NDX	SD NDX-HD LIMIT ULCA WMC										●	●	●	●				
		SD ND4 WMC					●	●	●	●	●	●	●	●	●	●			
	SD ND8 WMC					●	●	●	●	●	●	●	●	●	●	●			
	SD ND16 WMC					●	●	●	●	●	●	●	●	●	●	●			
	ND	SD ND1000 WMC					●	●	●	●	●	●	●	●	●	●			
		SD ND4(S) WMC																●	
		SD ND8(S) WMC																●	
		SD ND16(S) WMC																●	
SD ND1000(S) WMC																	●		
PD	UV	PD UV MC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		PD UV WMC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	CPL	PD CPL-HD WMC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Polarizer for mirrorless	PD PL-HD WMC FOR MIRRORLESS	●	●	●	●	●												
UD	UV	UD UV SC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	CPL	UD CPL-HD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	NDX	UD NDX-HD LIMIT										●	●	●	●	●			
		Polarizer for mirrorless	UD PL-HD FOR MIRRORLESS	●	●	●	●	●											
	ND	UD ND4(S)																	●
UD ND8(S)																		●	
UD ND16(S)																		●	
UD ND1000(S)																		●	







BRIGHT AND SHARP  
HIGH DEFINITION AND LOSSLESS

- ⊙ The original Ultra Low Chromatic Aberration
- ⊙ HD optical manufacturing process
- ⊙ Innovative ultra-thin filter frames
- ⊙ Patented ultra-thin Variable ND
- ⊙ China first publish polarizer for mirrorless

BENRO  
SHD  
CPL-HD ULCA WMC / SLIM 77mm

BENRO ultra Low Chromatic Aberration. Restore the true image