



# Master Macro 100

Close-Up on Quality





## Master Macro 100

For those who want the ultimate in image quality for table top cinematography, product shots, close-up inserts on feature films or any other applications that require a macro lens, the Master Macro 100 delivers images of breathtaking beauty.

Designed for the ANSI Super 35 image format, the Master Macro 100 can be used on any PL mount 35 mm film and single sensor digital camera. In addition it can be used on PL mount 16 mm film and single sensor 16 mm or 2/3" format digital cameras.

With a 1:1 magnification ratio, a maximum aperture of T2.0 and an optical design developed specifically for macro work, the Master Macro delivers phenomenally sharp and contrasty images with vibrant colors for extreme close-ups of the highest visual quality.

## CLOSE-UP ON QUALITY



An image created with the Master Macro 100 and the ARRIFLEX D-21

## It's all in the Family

ARRI and ZEISS have teamed up again to expand the Master Prime series - the most sophisticated 35 format lenses ever manufactured - with a spectacular macro lens. In the creation of the Master Macro 100, the same state-of-the-art technologies from the Master Primes have been used. These include exotic glass materials, special lens coatings and aspherical surfaces, which require ultra-high precision in design and manufacture. Thus the Master Macro not only surpasses all other macro lenses, but also creates images that perfectly match those of the other Master Prime lenses.

### The Master Primes Series



## Custom Developed for Professional Cinematography

While a quick close-up can always be grabbed by using a Master Prime with a Master Diopter, the Master Macro 100 is the tool of choice for the best image quality in extreme close-ups. Unlike most other macro lenses, the Master Macro 100 has been designed and built specifically for close-up motion picture cinematography. The result is a lens that meets the highest demands in image quality and handling.





## Main Features

### ■ Dedicated to Motion Picture Macro Work

- 100 mm macro lens with 1:1 magnification ratio
- novel optical design optimized for close-up work
- specifically created for cine applications
- Wide T-stop range: T2.0 (infinity)/T4.3 (close focus) to T32

### ■ Master Prime Optical Quality

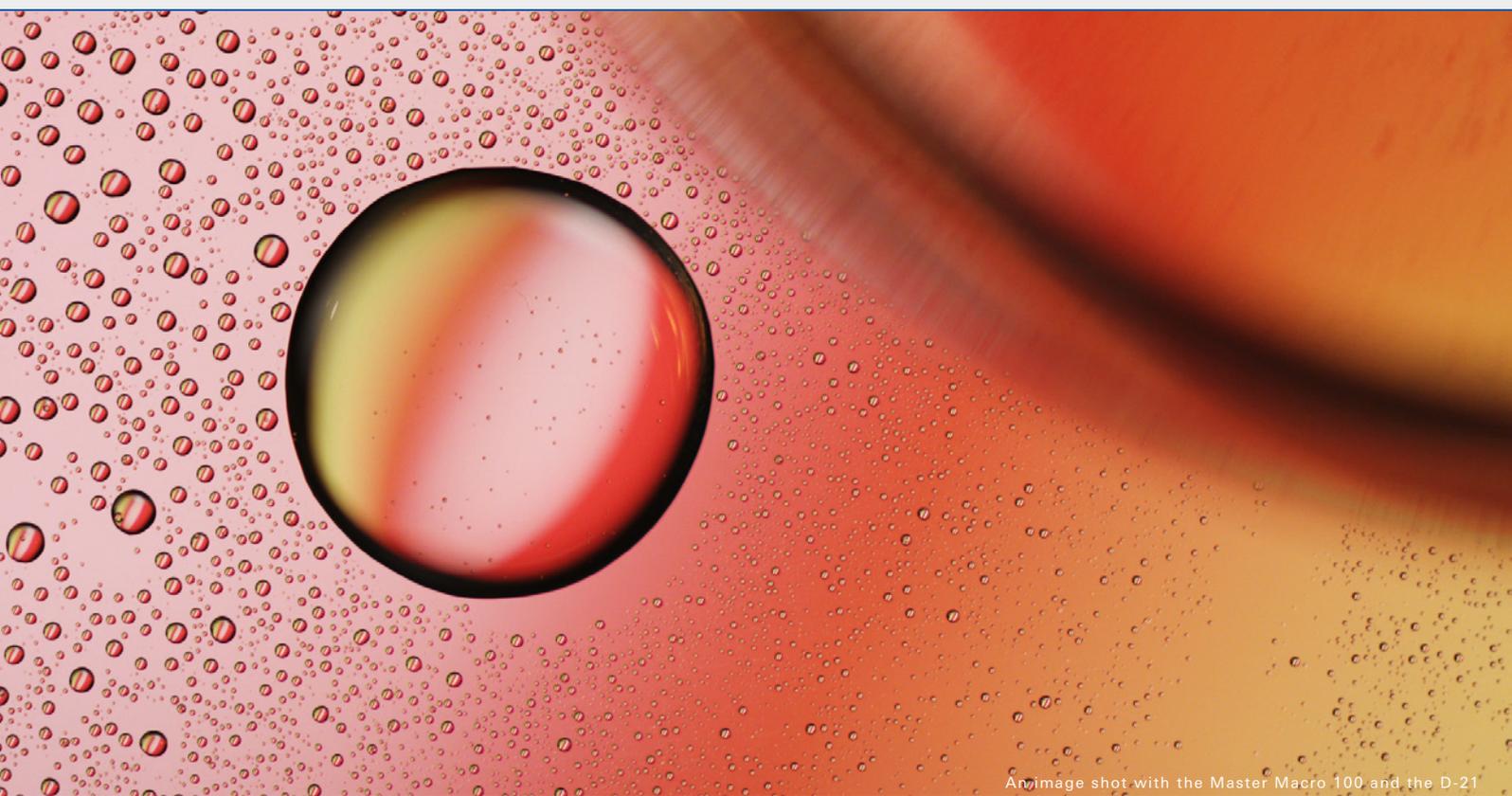
- based on Master Prime technology
- high resolution, high contrast
- dramatically reduced flare
- brilliant, vibrant colors
- low geometric distortion
- minimized chromatic aberration
- Super Color Matched to Master Primes, Ultra Primes, Ultra 16 lenses, Lightweight Zoom LWZ-1

### ■ Master Lens Ergonomics

- long focal length allows greater distance to subject
- expanded focus scale (1.4x revolutions) for greater accuracy
- individually calibrated focus scale
- simple and robust construction (no mechanical exposure compensation)
- can be used with lens motors
- focus and iris scales in standard Master Prime positions

### ■ Lens Data System

- LDS for display of T-stop compensation on WRC-2
- optional electronic exposure compensation with lens motors



An image shot with the Master Macro 100 and the D-21

## Focused on Macro Work

Most macro lenses are visibly darker and softer in the corners. The Master Macro 100, however, exhibits an extremely even illumination across the whole Super 35 frame and retains high resolution all the way from the center to the edges. Even better, through its novel design it is optimized to deliver this performance wide open and at its closest focus setting (1:1 magnification ratio) for a rich image with high contrast and lots of definition in shadows and highlights. Since it is a 100 mm telephoto lens, there is ample room in front of the lens to position the object to be captured and to set lighting instruments.

The Master Macro 100 is Super Color Matched to the other Master Primes, Ultra Primes, Ultra 16 lenses, Lightweight Zoom LWZ-1 and Master Diopters, so the cinematographer can craft a look on the set rather than matching lenses in post. Additionally, the iris opening of the Master Macro consists of nine high precision leaves, resulting in round and natural-looking out-of-focus highlights and an organic bokeh.

With this unique consistency across frame, aperture, focus range and color balance, cinematographers can concentrate on the images they want to create instead of having to adjust their style to the shortcomings of their lenses.



An image shot with the Master Macro 100 and the D-21



The same image shot with a conventional macro lens



An image shot with the Master Macro 100 and the D-21

## Close-Ups of Breathtaking Quality

The use of aspherical lens surfaces and exotic glass types with anomalous partial dispersion, like fluor crown and barium dense flint, greatly reduces chromatic aberration (color fringes). Modern optical design techniques ensure the optimal light path for reduced stray light and minimized geometric distortion, another feature the Master Macro 100 shares with the Master Primes.

The front element of the Master Macro is set back within the lens housing, which protects it from the reflected light that can so often be a problem when lighting subjects positioned close to the front of a lens. In effect, the forward section of the lens acts as a shade, absorbing any stray light.

This, in combination with the T\* XP anti-reflection coating, strategically painted lens rims and special light traps, means that cinematographers may spend far less time worrying about unwanted light on the image than with any other macro lens. It also means that the Master Macro 100 exhibits unsurpassed contrast, low veiling glare and rich, vibrant colors.



The T\* XP anti-reflex coating reduces veiling glare and internal reflections, and creates a pleasing, gentle color balance. Compared to conventional coatings it has a better transmission and a more uniform performance across the lens from optical center to the edges, resulting in higher contrast and deeper, richer blacks.

## Lens Data System

In order to maximize ruggedness and versatility, the Master Macro 100 has been constructed without mechanical exposure compensation. Instead, iris adjustments that compensate for light loss at close focus distances can be made by hand, or optionally by a lens motor.

Since the Master Macro 100 is compatible with the ARRI Lens Data System (LDS), it is able to communicate electronically with ARRI cameras. This allows the required T-stop compensation to be displayed on the Wireless Remote Control WRC-2 or to be automatically applied by the ARRI lens motors as focus is adjusted.



The Wireless Remote Control WRC-2 is used to control camera and lens, and displays lens and camera status information, including the close-up exposure compensation needed when shooting macro shots with the Master Macro 100.



## Master Lens Ergonomics

Camera assistants will appreciate the expanded focus scale (512 degrees = 1.4x revolutions) for greater focusing accuracy, an especially important subject with macro lenses. Each focus scale is individually calibrated and lists focus distance as well as magnification ratio and exposure compensation in large fluorescent markings for better visibility in low light conditions.

To allow assistants to work quickly and comfortably with the Master Macro 100, the shape of the lens housing has been optimized for the greatest number of lens motor combinations. All Master Primes use internal focusing and their focus and iris rings are in the same position lens to lens. Matte box, follow focus and lens motors need not be moved for each lens change.

Its rugged construction keeps the Master Macro 100 functioning even under adverse environmental conditions. To avoid unsightly scratches, all gear surfaces have been specially hardened with a Permadur™ surface treatment, making them 10 times harder than traditional anodized gear rings.



## Master Macro 100 – Show Reel

The first test shoot with the Master Macro was an unequivocal success, and the stunning images created can be seen as part of the Master Macro 100 show reel on the ARRI web site. Equally important, however, was the ease of use on the set.

Using the extra space in front of the lens afforded by the 100 mm focal length, ARRI's cinematographer Claus Richter placed the ARRI PAX LED lights close to the subject to be captured, and used their wireless color adjustment capability to precisely dial in a wide range of colors right on the set.

You can watch the show reel online at:  
[www.arri.com/mastermacro](http://www.arri.com/mastermacro)



### First Impressions by ARRI's Cinematographer Claus Richter

“ The Master Macro 100 is brilliant! In terms of sharpness, contrast and color saturation it is in a completely different class than all other macro lenses. And the combination of the Master Macro 100 with the PAX LED lights was like having the full power of a color grading suite on the set. It is fantastic to be able to try different color schemes right there, without constantly changing gels. „



The 100 mm focal length is perfect for close product shots



The PAX/LED wireless remote used for easy color adjustments

## Technical Data

Name	Master Macro T2.0/100 mm
Type <sup>(1)</sup>	Makro-Planar T* XP
Lens Mount <sup>(2)</sup>	PL-LDS
Aperture <sup>(3)</sup>	T2.0/T4.3 to T32
Close focus <sup>(4)</sup>	0.35 m / 13 3/4"
Magnification ratio <sup>(5)</sup>	1:1
Length <sup>(6)</sup>	202,7 mm / 8"
Front diameter <sup>(7)</sup>	114 mm / 4.5"
Weight	2.6 kg / 5.7 lbs
Horizontal angle of view ANSI Super 35 <sup>(8)</sup> ID = 31.14 mm <sup>(11)</sup>	14.02°
Horizontal angle of view DIN Super 35 <sup>(9)</sup> ID = 30.00 mm <sup>(11)</sup>	13.52°
Horizontal angle of view Normal 35 <sup>(10)</sup> ID = 27.20 mm <sup>(11)</sup>	12.42°
Entrance pupil <sup>(12)</sup>	77.1 mm / 3"

<sup>(1)</sup> T\* XP is the trademark of the ZEISS anti-reflection lens coating that significantly reduces veiling glare and other internal reflections. XP stands for extended performance.

<sup>(2)</sup> Positive locking 54 mm stainless steel lens mount with Lens Data System (LDS) contacts

<sup>(3)</sup> Maximum aperture at infinity is T2.0, at close focus T4.3

<sup>(4)</sup> Close focus is measured from the film/sensor plane

<sup>(5)</sup> Magnification ratio is the relationship of the size of an object on film (first number) to the size of that object in real life (second number)

<sup>(6)</sup> Lens length is measured from the lens mount to the front of the lens housing

<sup>(7)</sup> Diameter of the lens/matte box interface. Maximum lens housing diameter for the Master Macro 100 is 138 mm.

<sup>(8)</sup> Horizontal angle of view for an ANSI Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24.9mm x 18.7mm / 0.980" x 0.7362")

<sup>(9)</sup> Horizontal angle of view for a DIN Super 35 Silent camera aperture (aspect ratio 1.33:1, dimensions 24mm x 18mm / 0.944" x 0.7087")

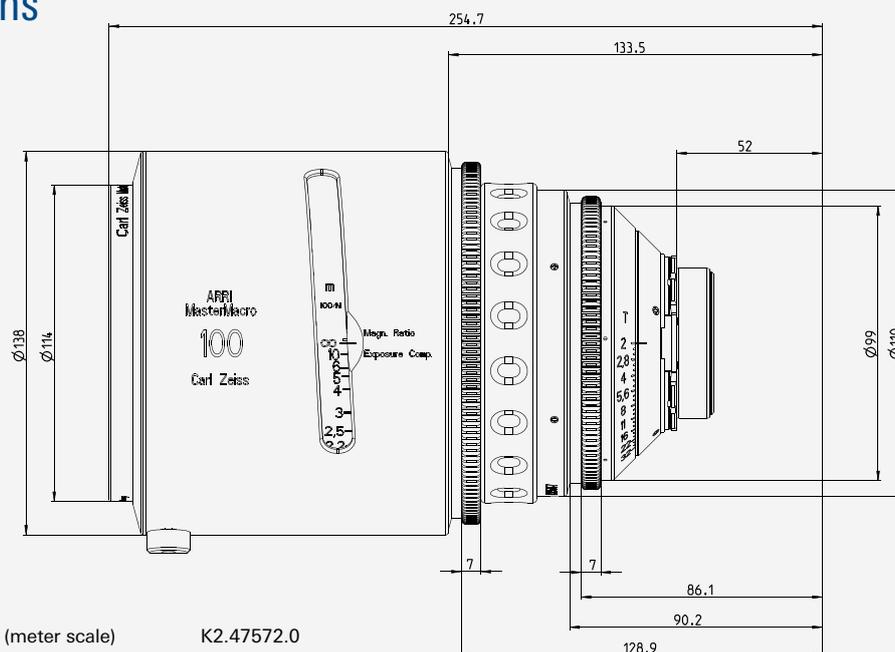
<sup>(10)</sup> Horizontal angle of view for a Normal 35 Academy camera aperture (aspect ratio 1.37:1, dimensions 22mm x 16mm / 0.8661" x 0.6299")

<sup>(11)</sup> The image diameter (ID) is the diameter of the image circle needed for the respective format.

The Master Macro 100 is designed for the largest ID given here (ANSI Super 35).

<sup>(12)</sup> The distance from the entrance pupil to the film/sensor plane. Positive numbers indicated an entrance pupil in front, negative numbers indicated an entrance pupil behind the film/sensor plane. The entrance pupil (often mistakenly called "nodal point") is the center of perspective; moving the camera/lens system around the center of the entrance pupil prevents parallax errors. While largely irrelevant for live action, this measurement is important for special effects work.

## Dimensions



### Ident. Numbers

Master Macro 100 (meter scale)	K2.47572.0
Master Macro 100 (feet scale)	K2.47573.0

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