



### **Series 1 28-90mm f/2.8-3.5 Macro Zoom**

- **Versatile focal range:** Ideal for portraits at 90mm, the most popular wide-angle focal length at 28mm.
- **Fast maximum aperture:** At f/2.8, the Vivitar 28-90mm is the fastest wide-angle to telephoto zoom on the market.
- **Impressive macro capability:** Macro focusing to 1:3.3 life size at 28mm, with a close-focusing distance of nine inches.
- **Superior optical quality:** Rare earth glasses and a patented design contribute to superb image rendition.





**Vivitar's new Series I\* 28-90mm f2.8-f3.5 macro-focusing zoom lens. The leading edge.** The development of the 28-90mm lens presented Vivitar optical designers with an incredibly complex set of design problems:

Four main requirements were established. The lens had to cover 28-90mm, an unprecedented zoom range. It had to have an extremely fast maximum aperture. It had to be small and light enough to match today's compact cameras. And, of course, it would have to meet the stringent quality and performance requirements that are the hallmark of Series I.\*

To meet these objectives called for a unique approach, something well beyond currently available optical designs.

In order to achieve the wide zoom range while maintaining the compact size, a tremendous amount of optical magnification in the main negative power group was needed. In itself, this would be simple. But we insisted on obtaining this without the aberrations which are normally associated with this degree of magnification.

An intensive effort began. To speed up the development process and to reach a mathematical precision just not humanly possible, we used an extraordinarily sophisticated computer program.

With the help of the computer we discovered a novel way to construct the power group. Due to the design of the group, the shape of the elements, and the use of tantalum glass, the needed magnification was obtained while minimizing astigmatism and rectilinear distortion. In fact, the design was so exceptional we patented it.

But we weren't finished. We added a singlet element fixed near the diaphragm, another patented innovation. This made possible a maximum aperture of f2.8 and corrected the distortion often present in fast wide angle to portrait zoom lenses.



Then, to assure Series I quality, we did even more. We utilized rare earth tantalum and lanthanum glasses to minimize aberrations. We hand painted the edges of the lens elements to eliminate internal reflections. And we coated the cam guides with Delrin® for smooth one-touch zoom and focusing.

All this means that when you decide on the Vivitar Series I 28-90mm lens you'll be getting a truly superior piece of optical equipment. A lens with resolution and contrast specifications that go way beyond what many other lenses offer. You'll be assured of performance that takes you where Series I has always taken you. To the top.

The Vivitar Series I 28-90mm lens is manufactured to fit precisely most popular 35mm SLR cameras including Nikon, Canon, Minolta, Olympus and Pentax.