

# The zoom that delivers high performance in some highly unusual places: Any focal length. Any aperture. Any distance.

When you buy a high performance zoom lens, you expect it to deliver high performance at all settings.

An assumption that's understandable, but not necessarily true. Except in the case of the Series 1<sup>®</sup> 28-90mm Macro Focusing Zoom lens from Vivitar.<sup>®</sup>

FACT: Our lens delivers unsurpassed contrast and resolution. And it does so at all focal lengths and apertures—on axis as well as in the corners and on the edges.

| VIVITAR SERIES 1 28-90mm Serial No. 28302652<br>FOCAL LENGTHS TESTED: 28mm & 90mm % FIELD .88 |        |                          |         |   |         |
|---|--------|--------------------------|---------|---|---------|
|   | f/STOP | CENTER<br>(Lines/<br>mm) | RATING* | AVERAGE CORNER<br>RADIAL/<br>TANGENTIAL<br>(Lines/mm) | RATING* |
| 28mm  | 2.8    | 71                       | E       | 47/45   | E/E     |
|   | 4.0    | 79                       | E       | 45/45   | E/E     |
| 90mm  | 3.5    | 72                       | E       | 41/42   | E/E     |
|   | 5.6    | 81                       | E       | 47/41   | E/E     |

\*Our test shows E (Excellent) resolution based on MODERN PHOTOGRAPHY lens test standard.

FACT: At 28mm our f/2.8 aperture is fully 30% faster than any other zoom in its class. And when extended to 90mm, its f/3.5 aperture actually lets in 60% more light than its closest competitor.

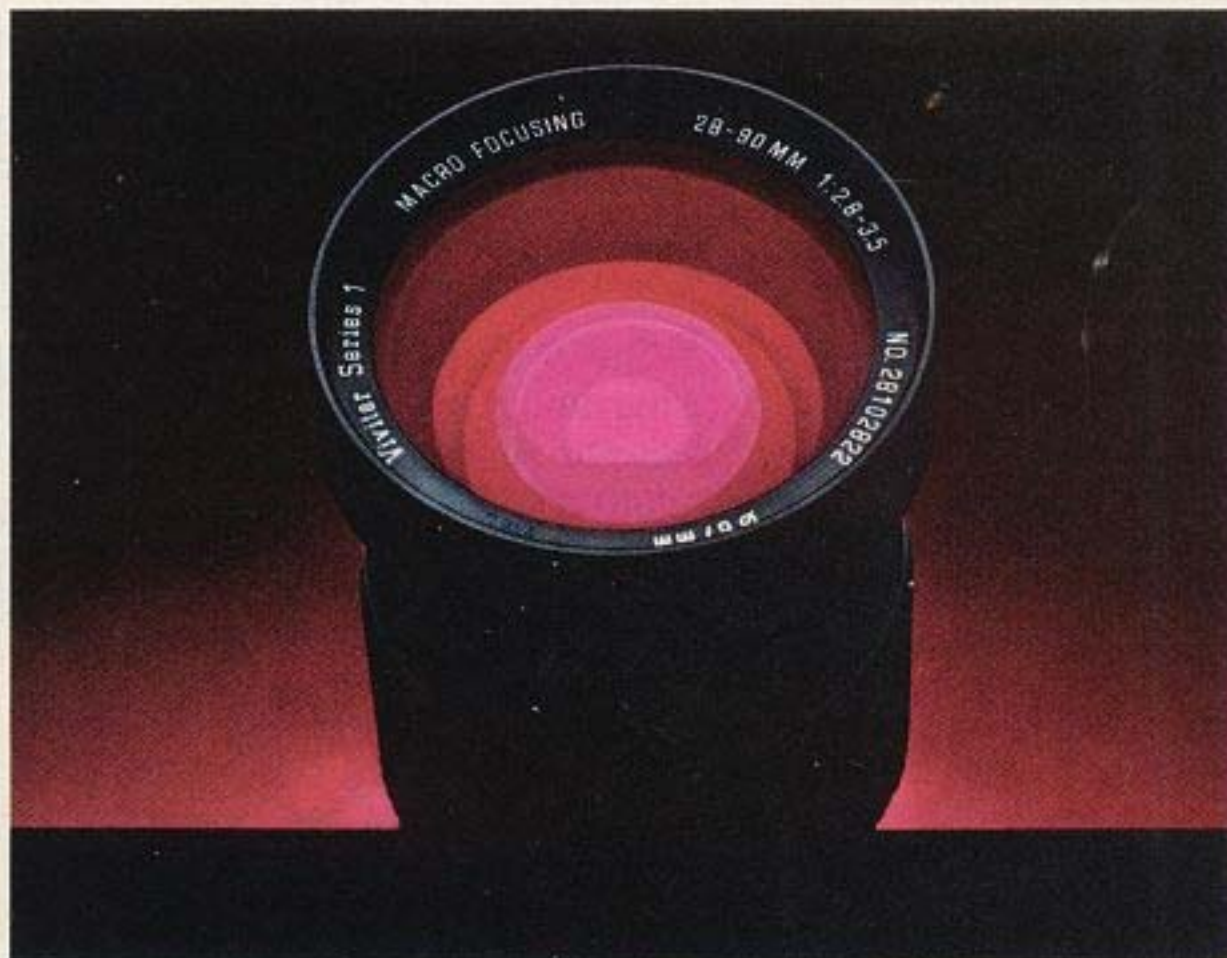
FACT: Our lens provides more precise focusing and more consistent image quality at all subject distances. This is because of a sophisticated, one-touch, Varifocal zoom design that uses all of the elements for focusing—

in exactly the same way as a fixed focal length lens.

The result: The Series 1 28-90mm lens not only outperforms other zoom lenses in its class, it even performs better than many fixed focal length lenses in sharpness and overall picture quality.

**If it's not in the design,  
it won't be in the lens.**

At Vivitar, we believe that uncompromising performance starts with uncompromising design standards.



© Vivitar Corporation, Santa Monica, CA, 1983. In Canada: Vivitar Canada Ltd./Ltée.



# Vivitar Series 1 28-90mm

For example, while our f/2.8 maximum aperture is clearly the fastest in its focal range, a fast aperture means very little to us if that lens won't perform well wide open. (In practice many lenses far slower than ours don't

the third group stationary), our patented design uses only 2 mechanical motions to perform 4 optical motions. And that results in more precise centration for optimal performance throughout the entire focal range.

actually copied our design. What would keep their lens from performing as well as our lens?

In a word, manufacturing. No other 28-90mm zoom is built to such exacting standards.

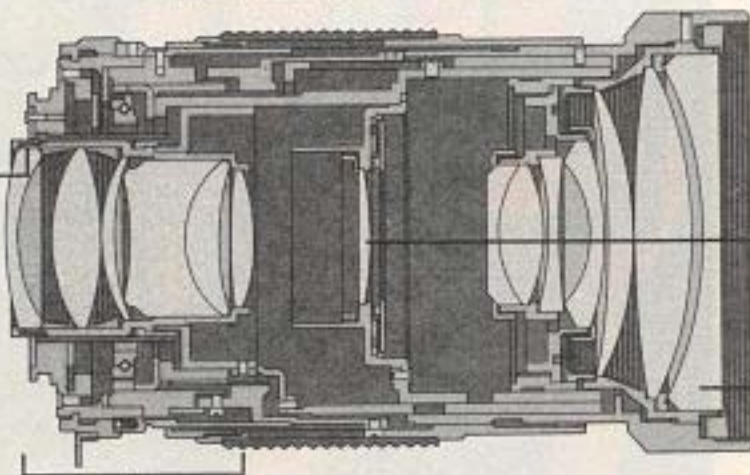
We mill the lens housing to incredibly precise tolerances for optimum centration. We coat the cam guides with solid fluoric synthetic resin lubricants for smooth focusing under even the most severe conditions. And we blacken the edges of the elements to eliminate internal reflections and flare, and to maximize contrast.

Yet even when the manufacturing is finished, we're not. Each Series 1 28-90mm lens is then individually adjusted by a technician to insure perfect optical alignment.

14 elements and 12 groups allow a maximum reproduction ratio of 1:3.3.

Hand painted, anti-reflective coatings on all element edges reduce internal reflection.

As many as 200 ball bearings are used for smooth diaphragm actuation shot after shot.



The driver groups perform four optical motions with only two mechanical motions which ensures element centration and makes the lens more compact.

perform well at maximum aperture.)

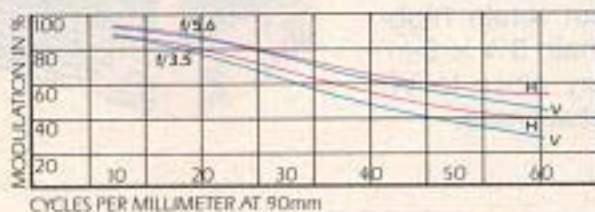
Therefore, we placed a patented single element group near the diaphragm which virtually eliminates the aberrations often found in wide angle to portrait zooms.

But what about centration? If element centration and alignment are critical in any lens, they're even more so in a zoom lens because the large number of moving elements can accentuate any inconsistencies.

The solution: By coupling the first and fourth lens groups (and keeping

Even if someone else's lens had the same design as our lens, it still wouldn't be our lens.

Suppose for a moment that such a lens did exist. Suppose somebody



Literally hundreds of MTF curves were analyzed to determine optimum performance throughout the zoom range, across the image plane, and at different object distances, focusing positions and apertures.



An example of the many critical tests performed on a Series 1 lens is an interferogram, which is used to evaluate the symmetry of element surfaces. Note the perfect surface quality of the 28-90mm lens on the left compared with the poor surface on the right.

So if you own a Nikon, Olympus, Canon, Pentax, Minolta, Contax, Yashica or other leading 35mm SLR, take a good look at our Series 1 28-90mm Macro Focusing Zoom lens.

It's built with a lot of performance. Not a lot of compromises.