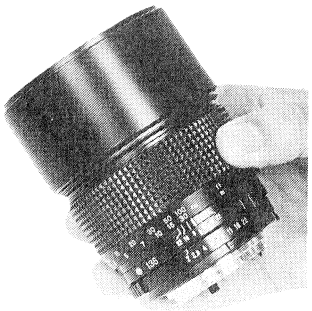
# modern tests

## MINOLTA'S FAST TELE: 135mm f/2

**Specifications:** 135mm f/2 MD Minolta; Minolta bayonet; no. 1001895; accepts 72mm screw-in filters; f/2 to 22, ½-stop detents, except between f/2 and f/2.8 and f/16 and f/22; min. foc. dist. 4 ft. (1.3,); 4⅛ in. long, 3⅛ in. diam. (105×79m); 1 lb. 9 oz. (708g); $491 with case.



**First 135mm seems chunky but is light to the touch.**

**Practical comments:** Large diameter, rather heavy, medium telephoto lens with fast maximum aperture. Counter-clockwise focus to infinity in about 270° turn of 1-in. textured rubber focusing collar. Focus is smooth but large barrel may require two-movement turn to go completely through focus range; all numbered scales clearly engraved—white for apertures depth-of-field and meters, yellow for footage scale, green for f/22; knurled aperture ring at rear of barrel; sliding, built-in lens shade.

**Field test slides:** Sharp, snappy images throughout, on par with best optics of this focal length and aperture. No color fringing visible. Flare is well-controlled at all apertures.

**Optical bench analysis** (for optical experts only): On-axis, moderate flare at f/2, very slight by f/4. Slight spherical aberration to f/8. Near diffraction limit by f/11. Off-axis image shows excessive flare at f/2, but this nearly disappears by f/4. Slight lateral color throughout.

### PERFORMANCE

| Our Standard | Tested |
|---|---|
| **Focal length** ±5% (128.25 – 141.75) | 134.71mm |
| **Aperture:** ±5% (f/1.90 – f/2.10 | f/2.05 |
| **Distortion:** (±2.5%) | <1% (pincushion) |
| **Light falloff:** at f/5.6, +1 stop from theoretical limit (0 – 1.1 stops) | 0.2 stops |

### RESOLUTION

**Minolta 135mm f/2 at 1:49 Magnification**

| f/ no. | Center (Lines/mm) | | Corner (Lines/mm) | |
|---|---|---|---|---|
| 2 | V. Good | 49 | Excellent | 39 |
| 2.8 | V. Good | 49 | Excellent | 44 |
| 4 | V. Good | 62 | V. Good | 44 |
| 5.6 | V. Good | 62 | Excellent | 49 |
| 8 | V. Good | 55 | Excellent | 49 |
| 11 | V. Good | 55 | V. Good | 44 |
| 16 | Good | 49 | Good | 39 |
| 22 | Good | 49 | Good | 39 |

### CONTRAST

**Minolta 135mm f/2 at 30 lines/mm**

| f/ no. | Center (%) | | Corner (%) | |
|---|---|---|---|---|
| 2 | High | 47 | High | 37 |
| 2.8 | High | 50 | High | 36 |
| 4 | Medium | 56 | Medium | 39 |
| 5.6 | High | 60 | Medium | 42 |
| 8 | High | 62 | Medium | 40 |
| 11 | High | 60 | High | 40 |
| 16 | High | 54 | Medium | 35 |
| 22 | High | 44 | Medium | 32 |

## THREE WIDE COMPACTS FROM PENTAX

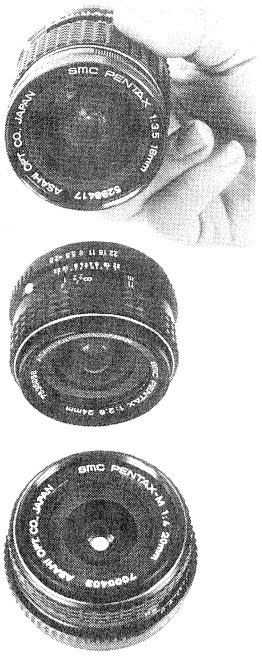
MODERN PHOTOGRAPHY APPROVED

LIMITED WARRANTY BY
Pentax Corporation
35 Inverness Drive East
Englewood, Colo. 80110

**Specifications: 18mm f/3.5 SMC Pentax, No. 5288417; mounts for Pentax K-type bayonet SLRs; accepts 58mm screw-in lens hood only; f/3.5 to f/22, full stop detents; min. foc. dist. .8 ft. (.25m); 2⁹⁄₁₆ in. long, 2½ in. diam. (65mm × 60mm), 10 oz. (296g.), $549, w. case and caps. Special features: built-in filter-wheel with cloud (81A), skylight (1A), yellow and orange filters.**

**Specifications: 20mm f/4 SMC Pentax-M, No. 7000403; mounts for Pentax K-type bayonet SLRs; accepts 49mm screw-in filters; f/4 to f/22, full-stop detents; min. foc. dist. 10 in. (.25m); 1¹³⁄₁₆ in. long, 2½ in. diam. (30mm × 63mm), 5 oz. (131g.), $467, w. case and caps.**

**Specifications: 24mm f/2.8 SMC Pentax, No. 7535058; mounts for Pentax K-type bayonet SLRs; accepts 52mm screw-in filters; f/2.8 to f/22, full-stop detents, min. foc. dist. .8 ft (.25m); 1⅝ in. long, 2½ in. diam. (42mm × 63mm), 7½ oz. (205g.), $292., w. case and caps).**



**Compact lenses for a compact camera. Superwide 18mm f/3.5 is a bare handful at top, compact 24 f/2.8 in center and 20mm f/4 are even smaller.**

**Practical comments:** All three lenses compact and light-weight, share similar textured focusing rings, blue footage scales and yellow metric distance scales, aperture detents at full stops. F/8 apertures indicated in orange, are used with orange mark on footage scale for hyperfocal distance settings. Smooth focusing clockwise toward infinity. White engraved depth of field scale marked for all stops, numbered

Continued on page 86

### PERFORMANCE

| Our Standard | Tested |
|---|---|
| **Focal length:** +–5% (17.10 – 18.90) | 18.75mm |
| **Aperture:** +–5% (f/3.33 – f/3.67) | f/3.54 |
| **Distortion:** (+–4.0%) | <1% |
| **Light falloff:** at f/5.6, +1 stop from theoretical limit (0-2.9 stops) | 2.0 stops |

### RESOLUTION

**Pentax 18mm f/3.5 at 1:50 Magnification**

| f/ no. | Center (Lines/mm) | | Corner (Lines/mm) | |
|---|---|---|---|---|
| 3.5 | V. Good | 50 | Good | 28 |
| 5.6 | Excellent | 63 | V. Good | 32 |
| 8 | Excellent | 56 | Good | 35 |
| 11 | Excellent | 56 | Good | 35 |
| 16 | V. Good | 50 | Excellent | 40 |
| 22 | Good | 45 | Good | 35 |

### CONTRAST

**Pentax 18mm f/3.5 at 30 lines/mm**

| f/ no. | Center (%) | | Corner (%) | |
|---|---|---|---|---|
| 3.5 | High | 48 | High | 38 |
| 5.6 | High | 78 | High | 54 |
| 8 | High | 80 | High | 51 |
| 11 | High | 74 | High | 45 |
| 16 | High | 62 | High | 44 |
| 22 | High | 52 | Low | 28 |

### PERFORMANCE

| Our Standard | Tested |
|---|---|
| **Focal length:** +–5% (22.80 – 25.20) | 24.85mm |
| **Aperture:** +–5% (f/2.66 – f/2.94) | f/2.83 |
| **Distortion:** (+–4.0%) | 1.1% (barrel) |
| **Light falloff:** at f/5.6, +1 stop from theoretical limit (0-2.6 stops) | 2.2 stops |

### RESOLUTION

**Pentax 24mm f/2.8 at 1:49 Magnification**

| f/ no. | Center (Lines/mm) | | Corner (Lines/mm) | |
|---|---|---|---|---|
| 2.8 | V. Good | 49 | V. Good | 31 |
| 4 | Excellent | 62 | V. Good | 35 |
| 5.6 | Excellent | 69 | V. Good | 39 |
| 8 | Excellent | 69 | V. Good | 39 |
| 11 | Excellent | 62 | Excellent | 44 |
| 16 | V. Good | 55 | Excellent | 44 |
| 22 | Good | 49 | V. Good | 39 |

### CONTRAST

**Pentax 24mm f/2.8 at 30 lines/mm**

| f/ no. | Center (%) | | Corner (%) | |
|---|---|---|---|---|
| 2.8 | High | 45 | High | 40 |
| 4 | High | 48 | Medium | 32 |
| 5.6 | High | 50 | Medium | 36 |
| 8 | Medium | 44 | High | 44 |
| 11 | High | 42 | High | 50 |
| 16 | Medium | 40 | High | 48 |
| 22 | Low | 32 | High | 42 |

### PERFORMANCE

| Our Standard | Tested |
|---|---|
| **Focal length:** +–5% (19.00 – 21.00) | 20.38mm |
| **Aperture:** +–5% (f/3.80 – f/4.20) | f/3.95 |
| **Distortion:** (+–4.0%) | <1% (barrel) |
| **Light falloff:** at f/5.6, +1 stop from theoretical limit (0-2.6 stops) | 2.8 stops |

### RESOLUTION

**Pentax 20mm f/4 at 1:48 Magnification**

| f/ no. | Center (Lines/mm) | | Corner (Lines/mm) | |
|---|---|---|---|---|
| 4 | Excellent | 60 | V. Good | 30 |
| 5.6 | Excellent | 60 | V. Good | 34 |
| 8 | Excellent | 60 | Excellent | 43 |
| 11 | Excellent | 68 | V. Good | 38 |
| 16 | V. Good | 54 | V. Good | 38 |
| 22 | Good | 48 | Good | 34 |

### CONTRAST

**Pentax 20mm f/4 at 30 lines/mm**

| f/ no. | Center (%) | | Corner (%) | |
|---|---|---|---|---|
| 4 | High | 67 | High | 33 |
| 5.6 | High | 73 | High | 40 |
| 8 | High | 75 | High | 44 |
| 11 | High | 77 | High | 46 |
| 16 | High | 62 | Low | 24 |
| 22 | High | 54 | Medium | 32 |

## MODERN TESTS

*Continued from page 82*

at f/4, 8, 16 and 22. Red infra-red index line. Front-mounted textured focusing collars range from 3/8 in. wide 20mm lens, 1/2 in. 24mm to nearly an inch (18mm optic). Raised white bayonet entry point indicators convenient as are commendably secure push-button lens caps.

Internal filters for the 18mm are well-selected for color and black and white. External filters should not be mounted on front of this lens as they may scratch the protruding front element. Threads are for accessory lens hood attachment *only*.

**Field test slides:** 18mm f/3.5. Even wide open, this extreme wideangle showed fine central performance. By f/5.6, central performance was maximized and the edges much improved. Performance held up well through f/16, beginning to drop at f/22. Flare and distortion were well-controlled for an extreme wide-angle.

*20mm f/4.* This tiny lens, delivered outstanding central sharpness even wide-open. Edge sharpness maximized at f/8 and overall performance held through f/11. Slight loss of sharpness due to diffraction was seen beyond f/16. Flare was well controlled and slight barrel distortion noted but not excessive for a 20mm wideangle.

*24mm f/2.8.* Flare was well-controlled. Slight barrel distortion seen, but not excessive for a 24. Central details crisp at f/2.8. and by f/5.6, overall sharpness was achieved, holding through f/11. At f/16, diffraction began to set in and by f/22 performance was reduced noticeably.

**Optical bench analysis:** (for optical experts only): 18mm-On axis, we saw slight orange flare, almost gone by f/5.6. Performance was near diffraction limited by f/8. Off-axis, star image was very weak. Very slight lateral color was present. 20mm-On axis, we saw slight red flare, performance was near diffraction limits by f/8. Off-axis, image was weak, slight coma seen, performance near diffraction limits by f/8. 24mm-On axis, we saw slight red flare gone by f/4, and very slight spherical aberration. Performance neared diffraction limits by f/5.6. Off-axis, image was weak with slight coma present. Near diffraction limited performance by f/8.

## NEW KODACOLORS