



flickerfree speeds

60 Hz Flickerfree Filming Speeds at Any Shutter Angle

| | | | |
|---------|--------|--------|--------|
| 1.000 | 1.500 | 1.875 | 2.000 |
| 2.500 | 3.000 | 3.750 | 4.000 |
| 4.800 | 5.000 | 5.217 | 5.454 |
| 5.714 | 6.000 | 6.315 | 6.666 |
| 7.058 | 7.500 | 8.000 | 8.571 |
| 9.231 | 10.000 | 10.909 | 12.000 |
| 13.333 | 15.000 | 17.143 | 20.000 |
| 24.000 | 30.000 | 40.000 | 60.000 |
| 120.000 | | | |

60 Hz Flickerfree Filming Speeds at Specific Shutter Angles

| Speed (fps) | Shutter Angle | |
|-------------|---------------|--------|
| 25.000 | 75.0° | 150.0° |
| 26.667 | 80.0° | 160.0° |
| 33.333 | 100.0° | 200.0° |
| 35.000 | 105.0° | 210.0° |
| 36.667 | 110.0° | |
| 43.333 | 130.0° | |
| 45.000 | 135.0° | |
| 46.667 | 140.0° | |
| 48.000 | 144.0° | |
| 50.000 | 150.0° | |
| 53.333 | 160.0° | |
| 55.000 | 165.0° | |
| 56.667 | 170.0° | |
| 57.600 | 172.8° | |
| 63.333 | 190.0° | |
| 65.000 | 195.0° | |
| 66.667 | 200.0° | |
| 70.000 | 210.0° | |
| 71.667 | 215.0° | |

NOTE: Film Tests Should be Used to Verify Results