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## 3 Chrome series lenses

### 3.0 Introduction

#### 3.0.1 Seikosha-MX shutter

The first series of lenses had Seikosha-MX shutters with a speed range of 1 - 1/400<sup>th</sup> second. This was the usual 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200, 1/400 step series. In common with a number of early leaf shutter designs the fastest speed can only be set with the shutter uncocked. The lens range was 65mm, 80mm (f2.8 only), 105mm, and 135mm. The optical construction is believed to be that same as the second chrome series, but this is unverified. Spares for these lenses are not easy to obtain due to their age and small production run. The shutter release is short and curved compared to later lenses, and the shutter cocking lever is smaller than that on the Seikosha-S shutters. The shutter cocking stroke is 67 degrees 30 minutes which is much less than the 112 degree 30 minute stroke of the later bodies. The M and X synchronisation lever looks like a miniature shutter cocking lever rather than the small projection used on the later lenses. It usually has a red insert in the end of the lever. The 80mm f2.8 is marked 'f=8cm'. At least one example has a 7 digit number on the shutter body in addition to the normal lens numbers. Some (if not all) 135mm lenses were marked as '13.5cm'. On one example the bottom of the lens mounting flange bears the text 'Made in Japan' in white. Sales period December 1956 to March 1959.

#### 3.0.2 Seikosha-S shutter

The second chrome series is by far the more common, with a wider shutter speed range in a modern one stop sequence. It was in production for models up to and including the C33/C22. The shutter is labelled Seikosha-S, and is identified by the chrome shutter/aperture bezel. Portions of the lens barrels may be black. The shutter speed scale is on the left (when holding the camera for photography), and the aperture scale is on the right. Shutter adjustment is via a thin knurled ring, aperture by moving a small pointer. Speeds 1 - 1/500 + B. Most lenses have double exposure prevention, in that the shutter release lever will only move when the shutter is cocked. However with some the release lever will move on the uncocked shutter, giving the impression that the shutter has fired.

Parts for these lenses are also limited. Sales period uncertain - ought to have been the mid-1960's until superseded.

### 3.03 Seikosha-SLV shutter

This shutter is not thought to have been used widely. It will not auto-cock on the C33/330 bodies, but it will not foul the auto-cocking mechanism. The shutter cocking stroke is 124 degrees (the cocking arm only moves 112 degrees 30 minutes.). Sales period April 1958 to July 1962.

The chrome lenses are cited as late as the C330 manual, but were probably no longer in production by that time.

### 3.1 65mm f3.5

<b>Composition</b>	6 elements 5 groups
<b>Picture angle</b>	63 degrees
<b>Minimum aperture</b>	f32
<b>Filter diameter (mm)</b>	49
<b>Lens hood diameter (mm)</b>	50
<b>Closest focus (cm)</b>	27 cm
<b>Subject coverage and reproduction ratio at closest focus (cm)</b>	7.03 x 7.03 cm x0.93
<b>Weight (grams)</b>	365
<b>Flash synchronisation</b>	X,M
<b>Other characteristics</b>	Retrofocus design, originally had filter thread guard rings. Late versions (c.C33) may have been supplied with a finder mask for correct exposure and parallax compensation. There was a wide-angle lens made to fit the sports finder in early WLFs to give the 65mm field of view.

### 3.2 80mm f2.8

<b>Composition</b>	5 elements 3 groups
<b>Picture angle</b>	50 degrees 40 minutes
<b>Minimum aperture</b>	f32
<b>Filter diameter (mm)</b>	40.5
<b>Lens hood diameter (mm)</b>	42
<b>Closest focus (cm)</b>	34.2 cm

<b>Subject coverage and reproduction ratio at closest focus (cm)</b>	8.9 x 8.9 cm x0.71
<b>Weight (grams)</b>	
<b>Flash synchronisation</b>	X,M
<b>Other characteristics</b>	

### 3.3 80mm f3.7

<b>Composition</b>	4 elements 3 groups?
<b>Picture angle</b>	50 degrees 40 minutes?
<b>Minimum aperture</b>	f32?
<b>Filter diameter (mm)</b>	40.5?
<b>Lens hood diameter (mm)</b>	42?
<b>Closest focus (cm)</b>	34.2 cm
<b>Subject coverage and reproduction ratio at closest focus (cm)</b>	8.9 x 8.9 cm x0.71
<b>Weight (grams)</b>	?
<b>Flash synchronisation</b>	M,X?
<b>Other characteristics</b>	Rare 'Budget' lens. Referenced in a C3 manual, and a couple of examples observed for sale. It is unknown if this lens would auto-cock on a later body. Mamiya-Kominar lens in Seikosha-SLV shutter.

### 3.4 105mm f3.5

<b>Composition</b>	4 elements 3 groups
<b>Picture angle</b>	41 degrees
<b>Minimum aperture</b>	f32
<b>Filter diameter (mm)</b>	40.5
<b>Lens hood diameter (mm)</b>	42
<b>Closest focus (cm)</b>	57.9 cm
<b>Subject coverage and reproduction ratio at closest focus (cm)</b>	17.9 x 17.9 cm x0.31
<b>Weight (grams)</b>	
<b>Flash synchronisation</b>	X,M
<b>Other characteristics</b>	Long focus design

### 3.5 135mm f4.5

<b>Composition</b>	4 elements 3 groups
<b>Picture angle</b>	33 degrees
<b>Minimum aperture</b>	f45?
<b>Filter diameter (mm)</b>	46
<b>Lens hood diameter (mm)</b>	48
<b>Closest focus (cm)</b>	82.3 cm
<b>Subject coverage and reproduction ratio at closest focus (cm)</b>	22.8 x 22.8 cm x0.25
<b>Weight (grams)</b>	
<b>Flash synchronisation</b>	X,M
<b>Other characteristics</b>	Long focus design. Some early Seikosha-S shutter lenses have the focal length in centimetres.

### 3.6 180mm f4.5

<b>Composition</b>	4 elements 3 groups
<b>Picture angle</b>	24 degrees 30 minutes
<b>Minimum aperture</b>	f45?
<b>Filter diameter (mm)</b>	49
<b>Lens hood diameter (mm)</b>	50
<b>Shortest film to subject distance (cm)</b>	118.9 cm
<b>Subject coverage and reproduction ratio at closest focus (cm)</b>	23.5 x 23.5 cm x0.24
<b>Weight (grams)</b>	
<b>Flash synchronisation</b>	X,M
<b>Other characteristics</b>	Early versions may require modification for auto-cocking on later bodies. Originally had chrome filter thread guard rings. Telephoto design.

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