

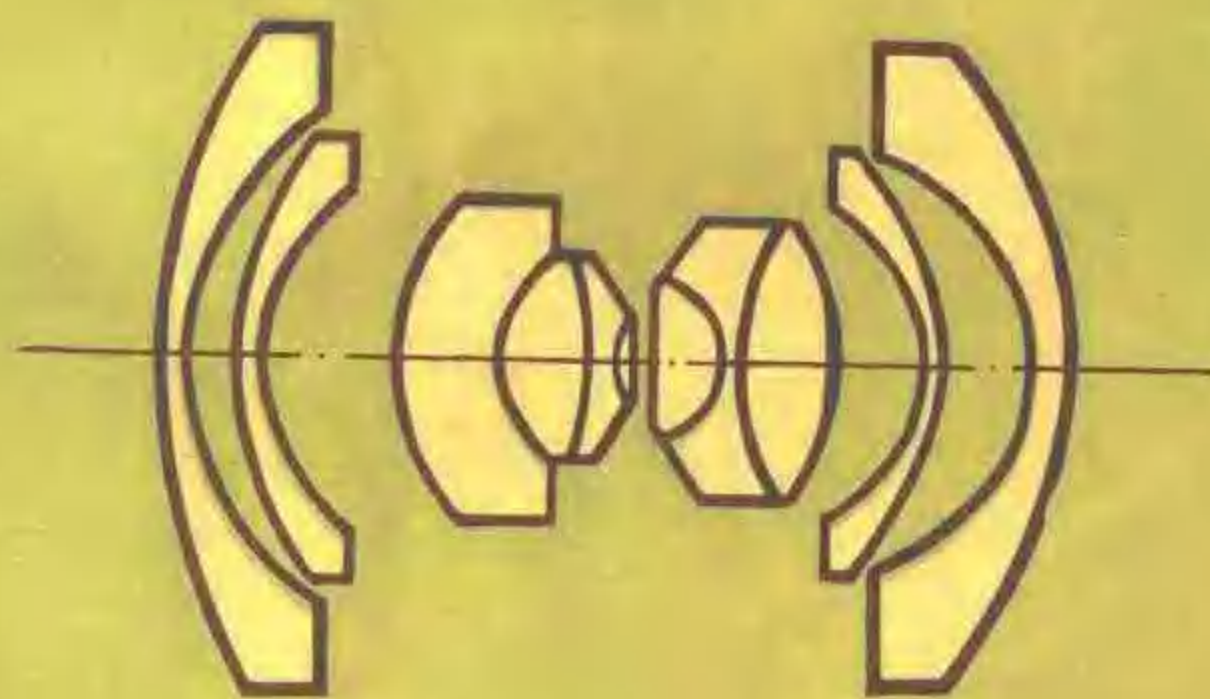
光学镜头手册

第二册

福建光学技术研究所

编译

国营红星机电厂



国防工业出版社

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内 容 简 介

本手册收集和整理了美、英、德、日等国从1811年至现在历年来的光学镜头资料。本册主要内容仍为大相对孔径物镜，共115个。每个镜头都附有光学镜头的结构图、各种主要参数及象差曲线图。

本手册可供研究所和工厂的光学设计人员和大专院校光学专业的师生参考。

光学镜头手册

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福建光学技术研究所 编 译
国营红星机电厂

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编译者说明

由于电子工业和电影、电视事业的飞速发展，近年来我国在光学镜头设计及加工方面取得了很大进展。成系列的各类镜头已经设计和试制出来，有些并已进入成批生产阶段。但在品种、数量和质量方面，跟世界先进水平相比，差距还是比较大。

近年来，我们收集了美、英、德、日等国从 1811 年到现在的光学镜头资料共 3000 多种，现挑选其中的一部分经补充整理之后，将其出版，以供我国从事光学镜头设计的人员参考。

我们准备分成“大相对孔径物镜”，“中等视场中等孔径物镜”，“广角物镜”，“制版及投影物镜”，“显微物镜”，“变焦距物镜”，“目镜”，“非球面系统”和其它等九类进行整理，预计分成十册。每册收集的镜头数约为 100~200 个。

原资料中，大部分没有列出象差曲线图，我们均重新计算给予补上。由于原资料的光栏位置大多没有给出，我们计算时只能根据我们主观给定的光栏位置进行计算，因此相应的象差曲线图仅供参考。

本册的内容仍为大相对孔径物镜。

由于我们水平有限，时间仓促，力量不足，所以只能一部分一部分地整理出版，而且在整理过程中，一定存在不少缺点和错误，分类也不可能完全合理，望读者批评指正。

本册中德文部分是由 1411 所陆家和同志翻译的。参加本册编译工作的有林茂智、杨甦田、叶恩霖、刘淑栓等四位同志。

编译者

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符号说明

1. 凡数据后有符号“*”，表示光栏位置或其值中间有光栏。

凡数据后有符号“**”，表示原资料中未给此值，此系编者在计算时给定的值。

2. 凡没有注明数值单位的，均以毫米为单位；若注明以英寸为单位，则在该镜头资料中均以英寸为单位。

3. 常用符号：

| | |
|---------------|---------------------------|
| ΣS_1 | 球差系数和； |
| ΣS_2 | 彗差系数和； |
| ΣS_3 | 象散系数和； |
| ΣS_4 | 场曲系数和； |
| ΣS_5 | 畸变系数和； |
| LA' | 球差； |
| $\Delta H'$ | 绝对畸变； |
| x'_t | 细光束子午场曲； |
| x'_s | 细光束弧矢场曲； |
| $x'_t - x'_s$ | 象散； |
| K'_{T1} | 全口径的子午彗差； |
| $K'_{T0.7}$ | 0.707口径的子午彗差； |
| QP | 相对畸变； |
| HI | 理想象高； |
| $E. F. L$ | 焦距； |
| $B. F. L$ | 后截距； |
| $FNo.$ | 相对孔径倒数； |
| $F. A.$ | 视场角； |
| L'_p | 入瞳距离或光栏距 L'_p 下标所示面的距离； |
| η | 物高； |
| ω | 镜头视场。 |

编号: 02-00-001

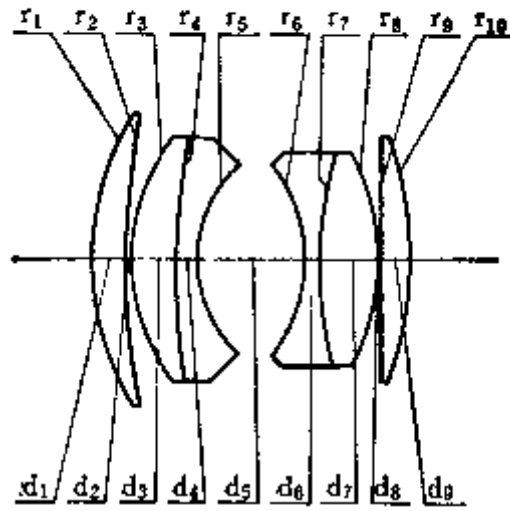
双高斯型物镜

E. F. L = 100

B. F. L = 72.43

FNo. = 2

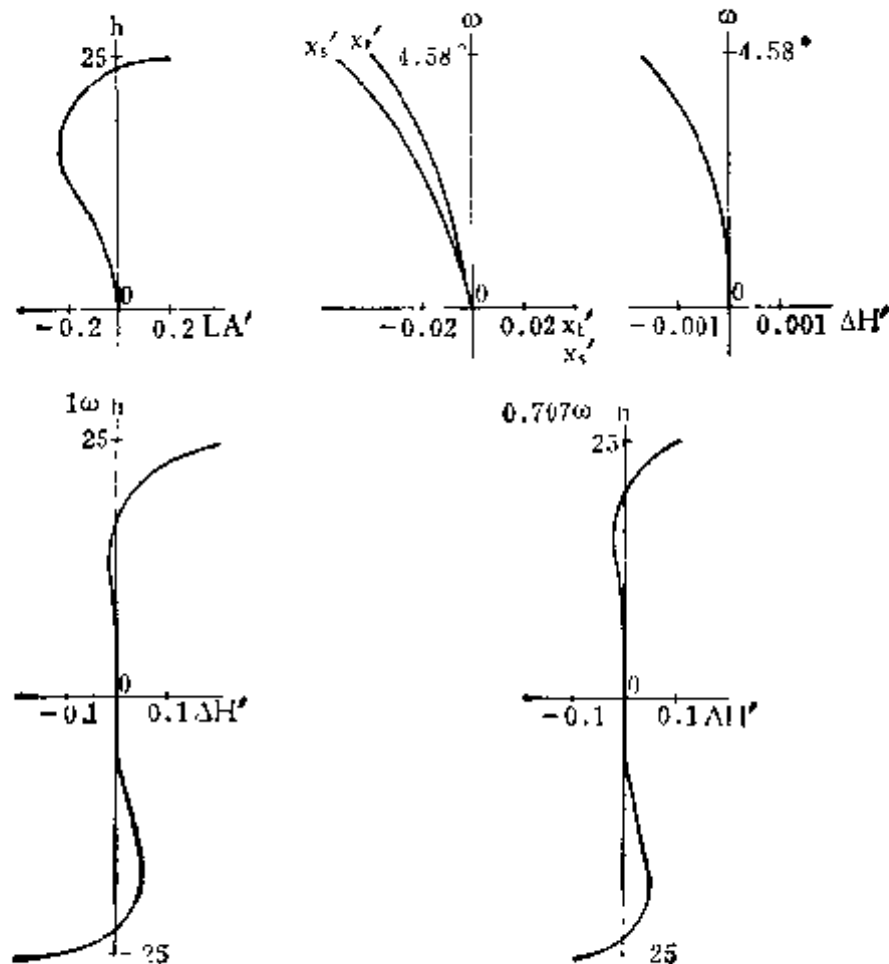
F. A. = $\pm 4.58^{**}$



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|--------|--------|----------------|------|----|---------|-------|----------------|------|
| 1 | 54.83 | 6.71 | 1.67003 | 47.2 | 6 | -30.20 | 3.17 | 1.63980 | 34.6 |
| 2 | 156.25 | 1.27 | | | 7 | 90.18 | 11.88 | 1.65844 | 50.8 |
| 3 | 39.67 | 8.93 | 1.69347 | 53.5 | 8 | -41.87 | 0.21 | | |
| 4 | 168.32 | 3.52 | 1.66446 | 35.9 | 9 | 2359.37 | 5.25 | 1.74472 | 44.7 |
| 5 | 25.89 | 21.21* | | | 10 | -77.24 | | | |

21.21* = 10.00 + 11.21

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | Hl | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.13 | 0.0051 | 0.00082 | -0.0077 | -0.00085 | 8 | -0.02% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.2 | -0.0017 | -0.041 | -0.054 | 0.013 | 0.029 | 0.021 |
| 70 | -0.26 | -0.0006 | -0.021 | -0.027 | 0.0061 | 0.021 | 0.015 |



编号: 02-00-002

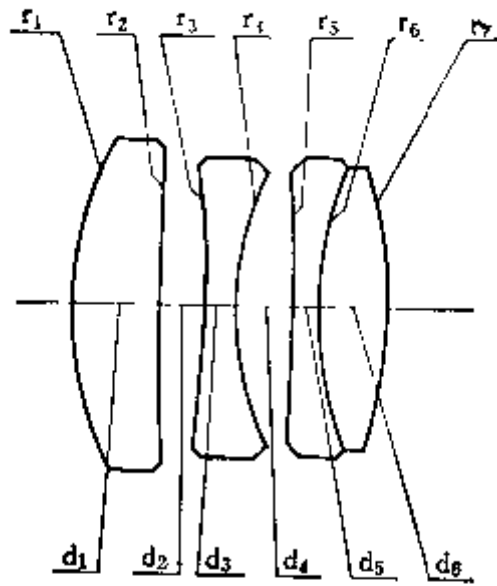
摄影物镜

E. F. L = 1

B. F. L = 0.80566

FNo. = 2.4

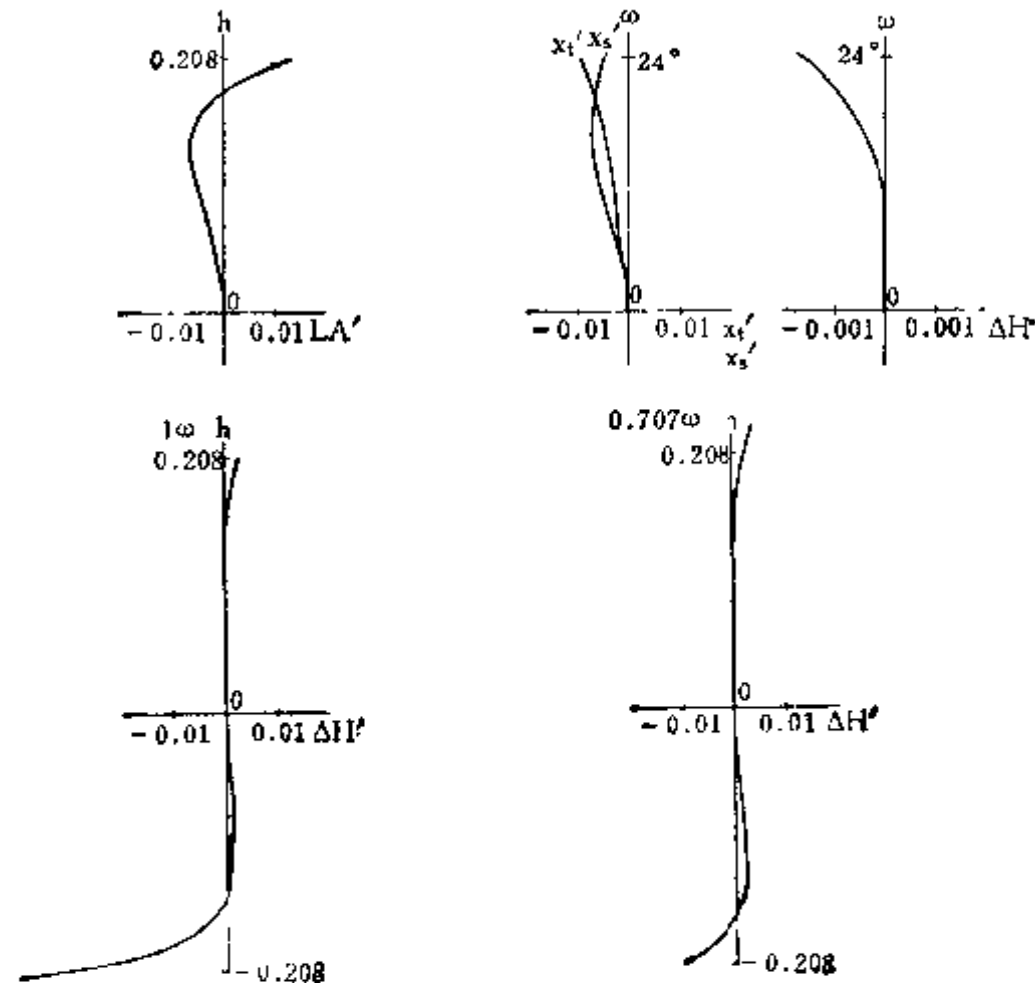
F. A. = $\pm 24^\circ$



| 序号 | r | d | n_d | v_d | 序号 | r | d | n_d | v_d |
|----|-----------|----------|---------|-------|----|------------|---------|---------|-------|
| 1 | 0.455042 | 0.11732 | 1.78797 | 47.44 | 5 | -14.149473 | 0.03355 | 1.62004 | 36.31 |
| 2 | 7.882584 | 0.05729 | | | 6 | 0.492931 | 0.08778 | 1.78443 | 43.77 |
| 3 | -0.862766 | 0.03876 | 1.68893 | 31.15 | 7 | -0.580024 | | | |
| 4 | 0.397638 | 0.07705* | | | | | | | |

$$0.07705^* = 0.03000 + 0.04705$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.002 | 0.0006 | 0.000024 | -0.0017 | -0.00012 | 0.13 | -0.38% |
| h 或 ω % | LA' | ΔH | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.012 | -0.0016 | -0.0090 | -0.0043 | -0.0047 | 0.018 | -0.0019 |
| 70 | -0.0055 | -0.00036 | -0.0059 | -0.0068 | 0.00095 | -0.0044 | 0.00025 |



编号: 02-00-003

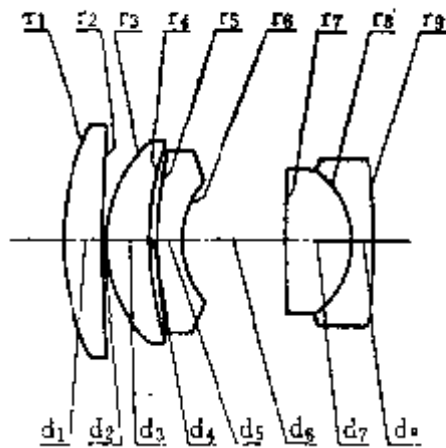
摄影物镜

E. F. L = 100

B. F. L = 49.91

FNo. = 2

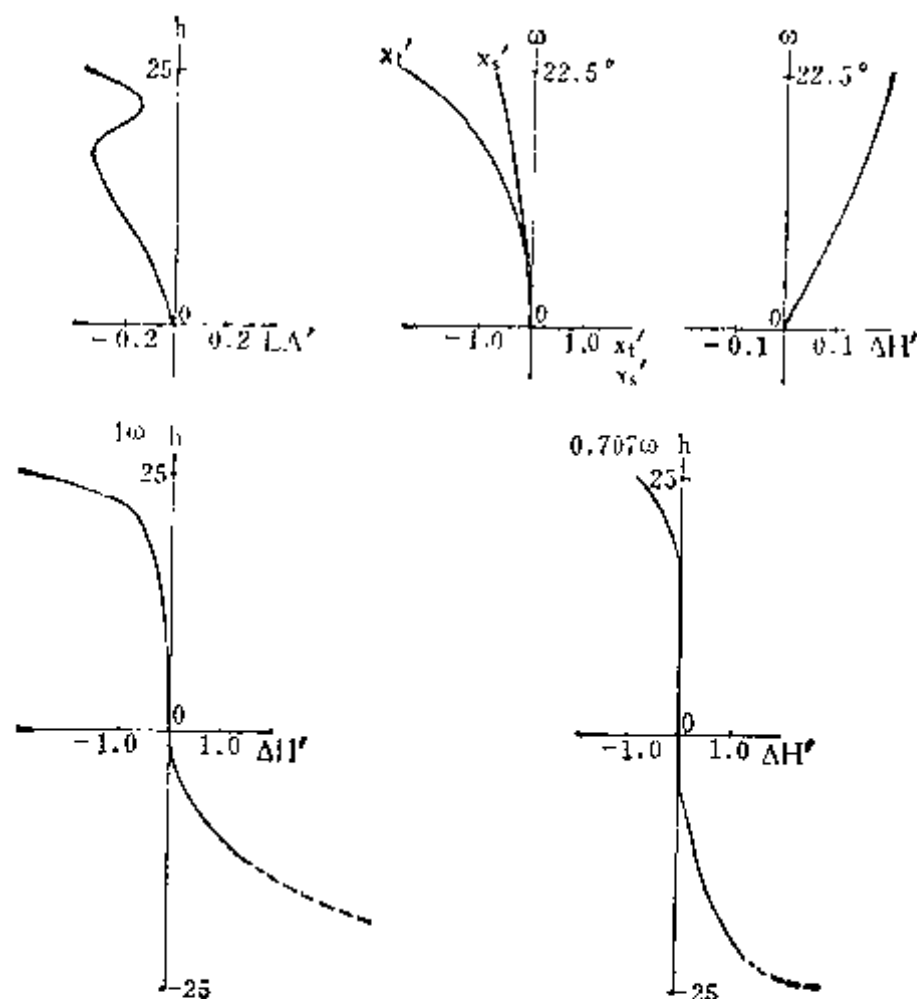
F. A. = $\pm 22.5^\circ$



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|--------|------|----------------|----------------|----|---------|--------|----------------|----------------|
| 1 | 50.82 | 7.74 | 1.5688 | 63.1 | 6 | 18.55 | 21.90* | | |
| 2 | 273.16 | 0.07 | | | 7 | 379.58 | 12.61 | 1.6700 | 47.1 |
| 3 | 27.83 | 8.90 | 1.7015 | 41.1 | 8 | -17.62 | 4.38 | 1.6073 | 49.2 |
| 4 | 61.65 | 1.00 | | | 9 | -115.32 | | | |
| 5 | 83.58 | 4.88 | 1.7408 | 27.7 | | | | | |

$$21.90^* = 19.00 + 2.90$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.20 | 0.20 | -0.073 | -0.16 | 0.36 | 42.27 | 0.52% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{f1} | $K'_{f0.7}$ |
| 100 | -0.39 | 0.22 | -2.71 | -0.70 | -2.01 | | 1.81 |
| 70 | -0.34 | 0.18 | -1.09 | -0.65 | -0.44 | 5.46 | 0.38 |



编号: 02-00-005

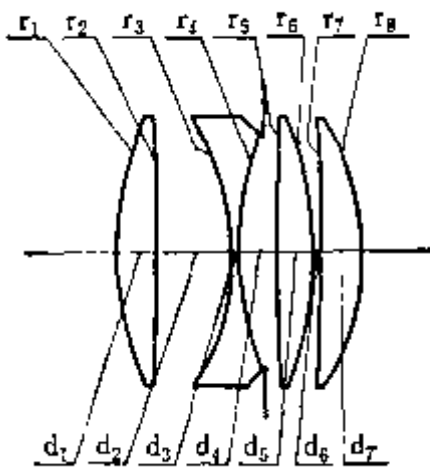
摄影物镜

E. F. L = 1

B. F. L = 0.90 ,

FNo. = 2

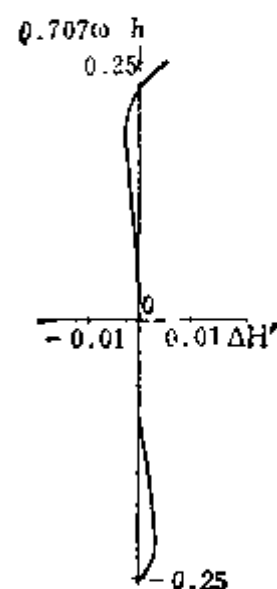
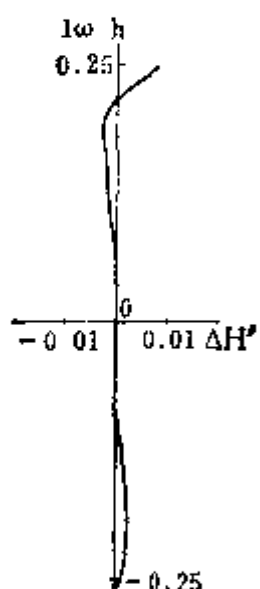
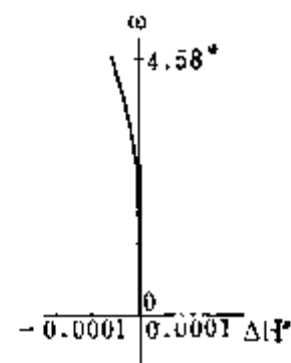
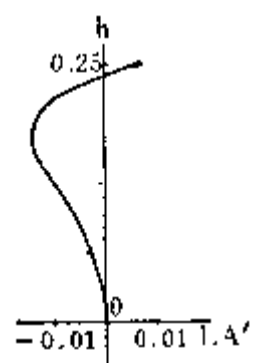
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|--------|--------|----------------|----------------|----|---------|-------|----------------|----------------|
| 1 | 0.634 | 0.076 | 1.605 | 1.6183 | 5 | 9.236 | 0.069 | 1.605 | 1.6183 |
| 2 | -8.388 | 0.150* | | | 6 | -0.745 | 0.016 | | |
| 3 | -0.470 | 0.012 | 1.617 | 1.6367 | 7 | -15.394 | 0.036 | 1.516 | 1.5204 |
| 4 | 0.703 | 0.072 | | | 8 | -0.471 | | | |

$$0.150^* = 0.050 + 0.100$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.0046 | -0.00034 | 0.000029 | -0.00021 | -0.000024 | 0.08 | -0.062% |
| h 或 ω % | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.0072 | -0.000051 | -0.0010 | -0.0015 | 0.000489 | 0.0033 | -0.00057 |
| 70 | -0.013 | -0.000018 | -0.00052 | -0.00076 | 0.00024 | 0.0023 | -0.00042 |



编号: 02-00-006

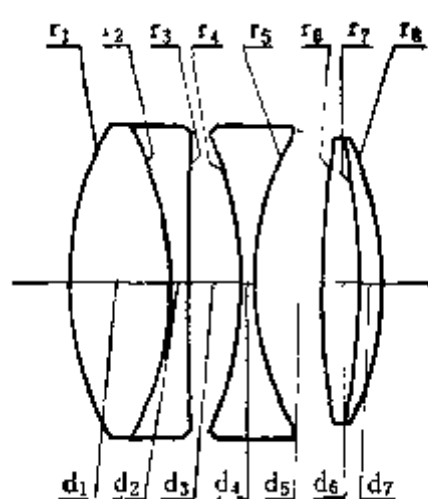
摄影物镜

E. F. L = 100

B. F. L = 80.72

FN₀ = 2.5

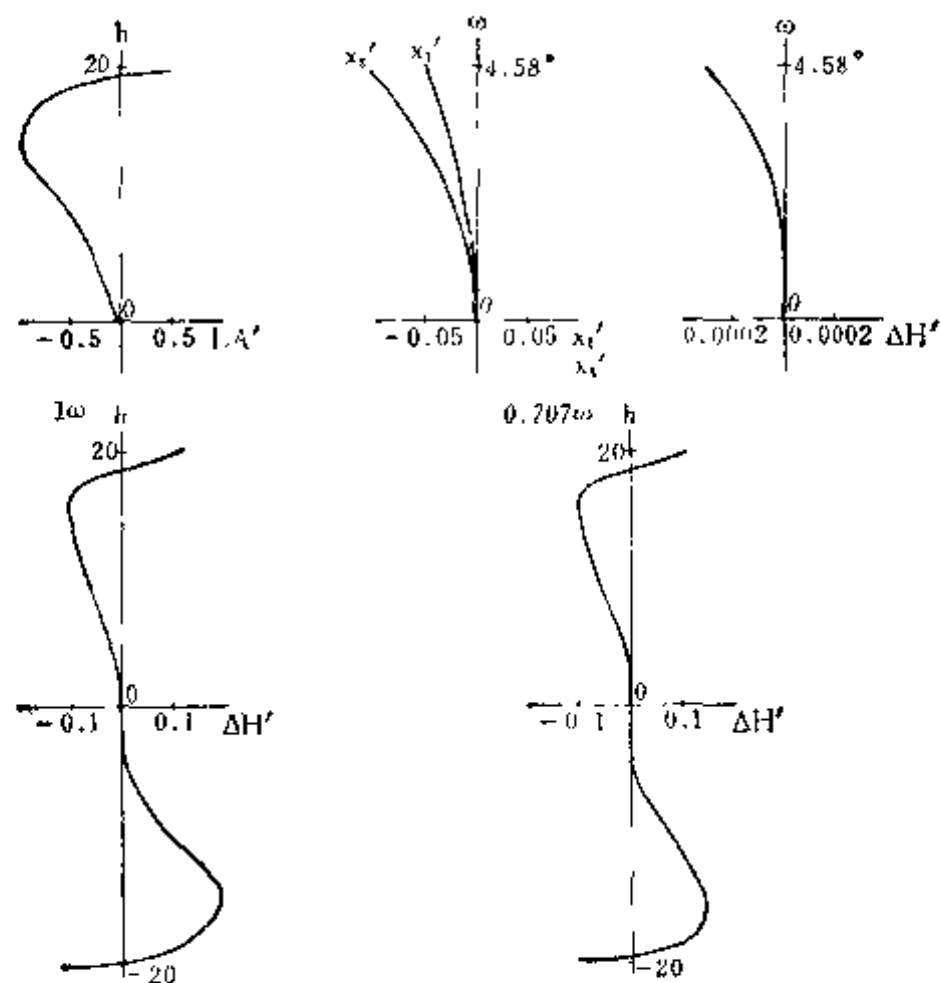
F. A. = ± 4.58' **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|--------|-------|----------------|------|----|--------|-------|----------------|------|
| 1 | 40.37 | 13.30 | 1.6139 | 36.4 | 5 | 38.07 | 9.03* | | |
| 2 | -43.81 | 2.20 | 1.5490 | 46.1 | 6 | 104.50 | 4.80 | 1.5990 | 57.2 |
| 3 | 727.30 | 6.66 | | | 7 | -89.47 | 3.30 | 1.5470 | 62.8 |
| 4 | -50.10 | 2.00 | 1.6260 | 39.2 | 8 | -41.58 | | | |

$$9.03^* = 4.50 + 4.53$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.24 | 0.0066 | 0.0022 | -0.010 | -0.00011 | 8 | -0.0039% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.52 | -0.00032 | -0.047 | -0.103 | 0.056 | -0.023 | 0.017 |
| 70 | -1.00 | -0.00010 | -0.023 | -0.051 | 0.028 | -0.023 | 0.012 |



编号: 02-00-007

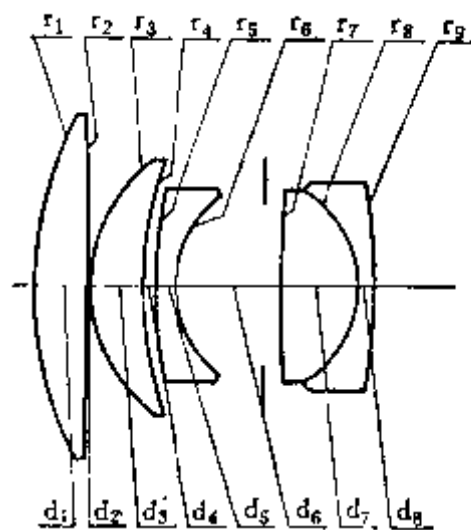
四组五片摄影物镜

E. F. L = 100

B. F. L = 47.91

FNo. = 1.8

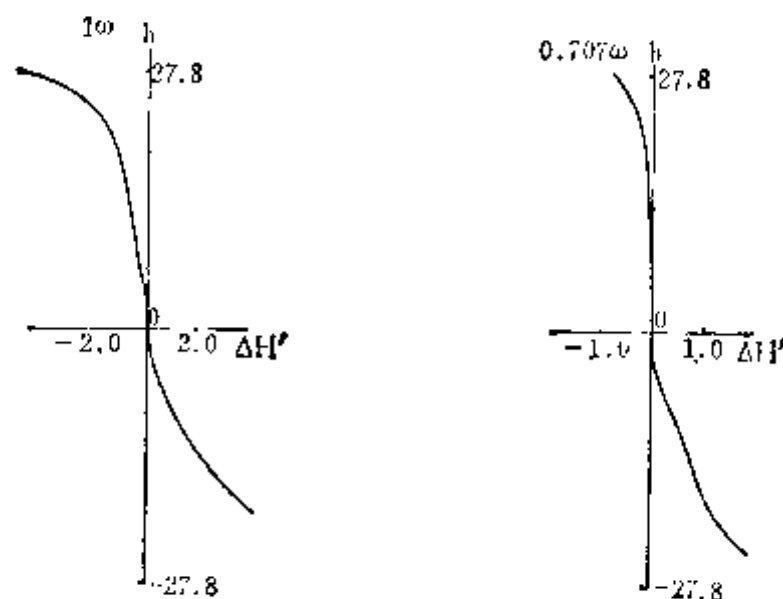
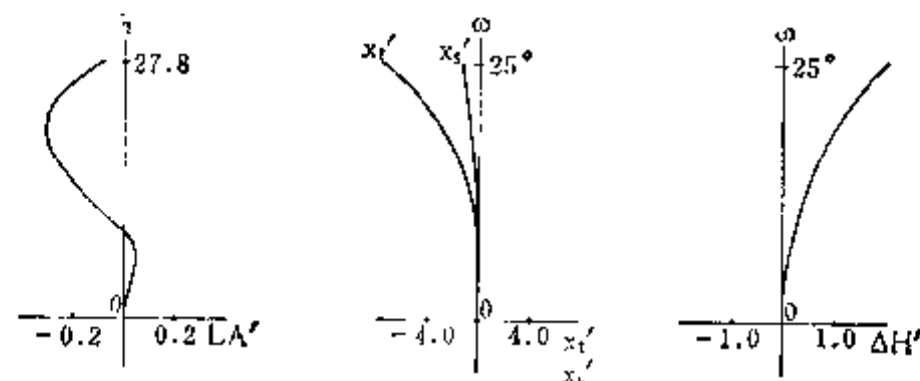
F. A. = $\pm 25^\circ$



| 序号 | r | d | n_D | v_D | 序号 | r | d | n_D | v_D |
|----|----------|-------|--------|-------|----|---------|--------|--------|-------|
| 1 | 70.46 | 10.60 | 1.5885 | 61.2 | 6 | 21.89 | 20.60* | | |
| 2 | -1960.00 | 0.40 | | | 7 | 236.18 | 15.10 | 1.6584 | 51.0 |
| 3 | 30.97 | 10.20 | 1.6694 | 47.3 | 8 | -21.70 | 3.0 | 1.5718 | 53.1 |
| 4 | 73.83 | 2.85 | | | 9 | -137.17 | | | |
| 5 | 127.83 | 4.10 | 1.7402 | 28.1 | | | | | |

20.60* = 12.00 + 8.60

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.26 | 0.18 | -0.13 | -0.31 | 1.08 | 42.44 | 5.5% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.083 | 2.33 | -8.07 | -1.73 | -6.34 | | 1.09 |
| 70 | -0.32 | 0.68 | -2.25 | -1.02 | -1.23 | 0.92 | 0.42 |



编号: 02-00-009

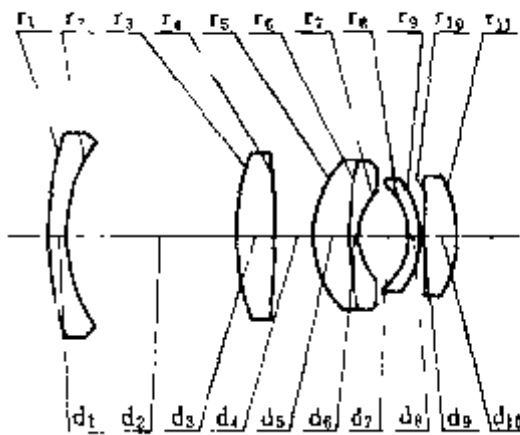
大 孔 径 摄 影 物 镜

E. F. L = 1

B. F. L = 0.7862

FNo. = 2

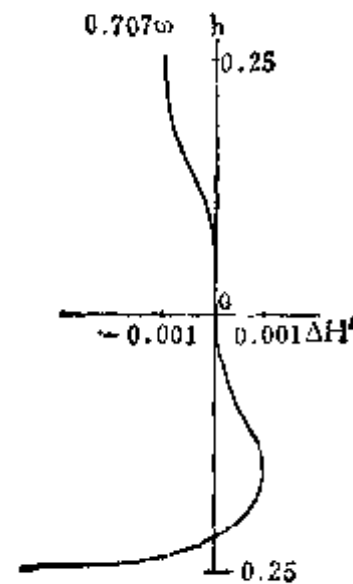
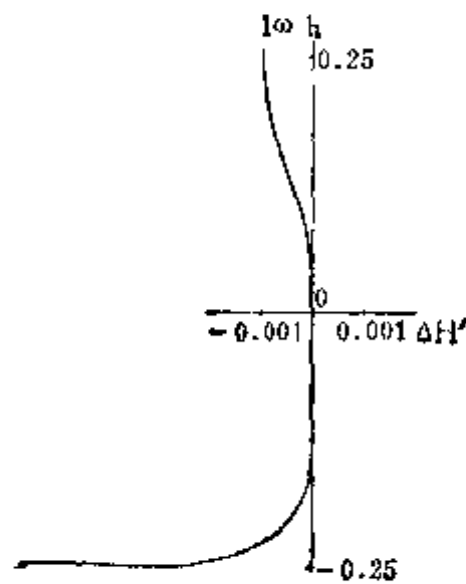
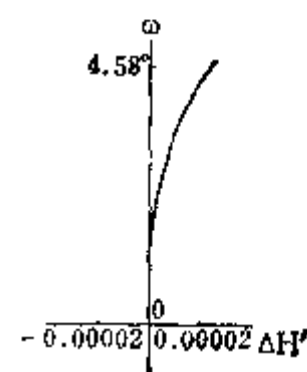
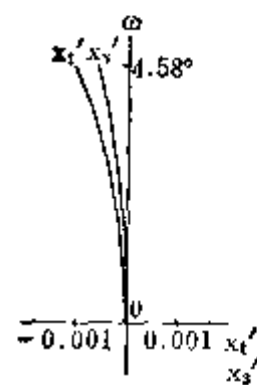
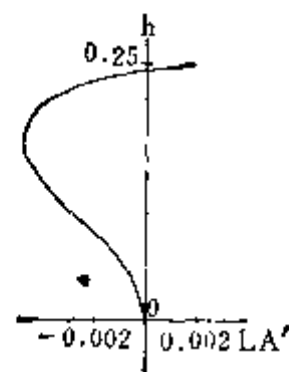
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | n_d | v | 序号 | r | d | n_d | v |
|----|---------|--------|---------|------|----|---------|---------|---------|------|
| 1 | 1.2722 | 0.0788 | 1.62170 | 60.4 | 7 | 0.2796 | 0.2126* | | |
| 2 | 0.6861 | 0.7403 | | | 8 | -0.2855 | 0.0551 | 1.75679 | 27.6 |
| 3 | 0.8645 | 0.1575 | 1.65867 | 50.7 | 9 | -0.3656 | 0.0039 | | |
| 4 | -4.8097 | 0.0709 | | | 10 | 34.6191 | 0.1457 | 1.59105 | 61.2 |
| 5 | 0.4244 | 0.1693 | 1.69347 | 53.7 | 11 | -0.5209 | | | |
| 6 | 0.9940 | 0.0394 | 1.75520 | 27.5 | | | | | |

$$0.2126^* = 0.1000 + 0.1126$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|----------------|------------|-----------------|
| | -0.0023 | 0.00010 | -0.000023 | -0.000049 | 0.000012 | 0.98 | 0.03% |
| h 或 ω % | LA' | $\Delta H'$ | x_t | x_s^* | $x_t' - x_s^*$ | K_{T1}^* | $K_{T0.7}^*$ |
| 100 | 0.0018 | 0.000024 | -0.00096 | -0.00058 | -0.00038 | -0.0035 | -0.00017 |
| 70 | -0.0051 | 0.000008 | -0.00047 | -0.00029 | -0.00018 | -0.0025 | -0.00012 |



编号: 02-00-010

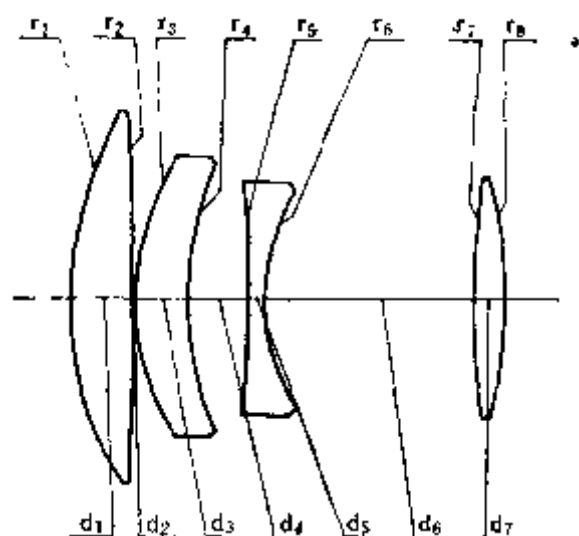
摄影物镜

E. F. L = 100

B. F. L = 58.15

FNo. = 2

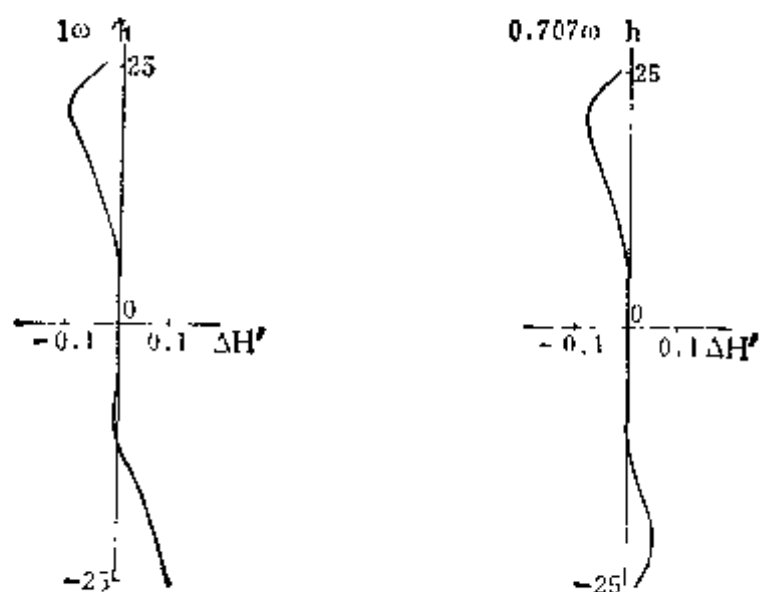
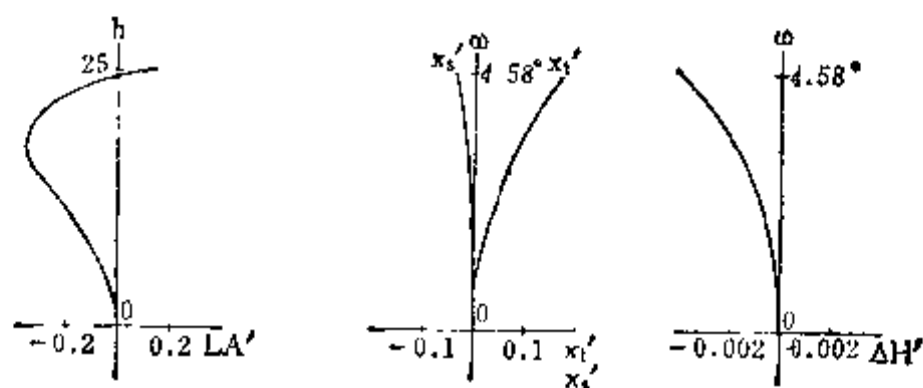
F. A. = $\pm 4.58''$ **



| 序号 | r | d | n_D | v_D | 序号 | r | d | n_D | v_D |
|----|----------|-------|---------|---------|----|----------|---------|---------|---------|
| 1 | 52.000 | 9.000 | 1.56384 | 1.57532 | 5 | -260.000 | 2.000 | 1.64769 | 1.67249 |
| 2 | -450.000 | 0.000 | | | 6 | 28.840 | 30.000* | | |
| 3 | 36.000 | 8.000 | 1.56384 | 1.57532 | 7 | 110.000 | 5.000 | 1.56384 | 1.57532 |
| 4 | 48.539 | 8.605 | | | 8 | -61.496 | | | |

30.000* = 15.000 + 15.000

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------------------|-----------|-----------------|
| | -0.15 | -0.010 | 0.013 | -0.017 | -0.0020 | 8 | -0.050% |
| h 或 ω % | LA' | $\Delta H'$ | λ'_t | λ'_s | $\lambda'_t - \lambda'_s$ | K'_{f1} | $K'_{f0.7}$ |
| 100 | 0.097 | -0.0040 | 0.170 | -0.032 | 0.202 | 0.026 | -0.013 |
| 70 | 0.37 | -0.0014 | 0.091 | -0.016 | 0.107 | -0.0061 | -0.016 |



编号: 02-00-011

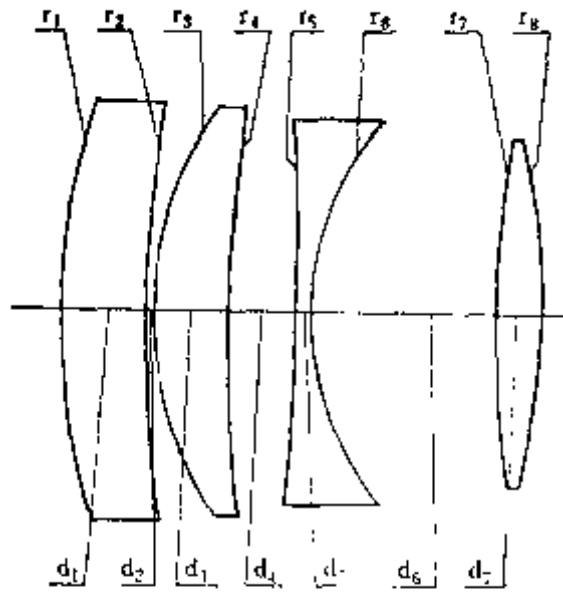
消球差、色差和象散的摄影物镜

E. F. L = 100

B. F. L = 74.1

FNo. = 2

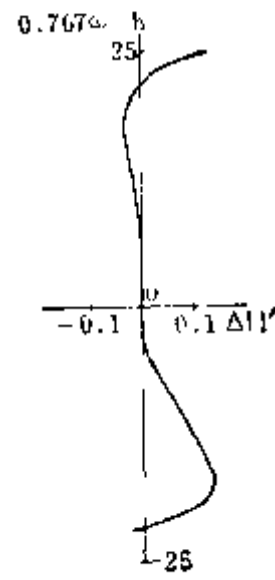
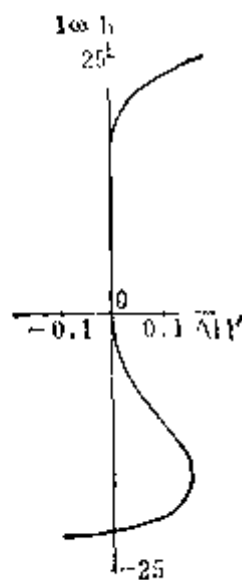
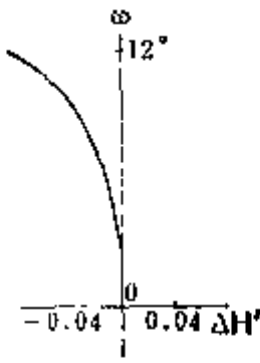
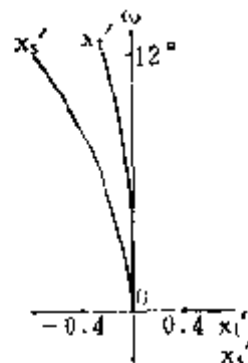
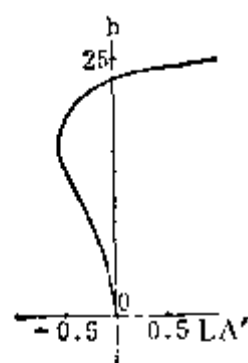
F. A. = $\pm 12^\circ$



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|-------|-----|--------|------|----|--------|-------|--------|------|
| 1 | 80.2 | 9.3 | 1.6130 | 58.5 | 5 | -320.7 | 2.0 | 1.6489 | 33.8 |
| 2 | 142.8 | 0.5 | | | 6 | 33.0 | 20.0* | | |
| 3 | 38.1 | 8.4 | 1.6130 | 58.5 | 7 | 114.2 | 4.6 | 1.6130 | 58.5 |
| 4 | 173.1 | 7.1 | | | 8 | -77.3 | | | |

20.0* = 12.0 + 8.0

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|------------|------------------|
| | -0.25 | 0.051 | 0.033 | -0.13 | -0.027 | 22.08 | -0.38% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K_{T1}^* | $K_{T0.7}^*$ |
| 100 | 1.00 | -0.084 | -0.20 | -0.76 | 0.56 | -0.54 | 0.080 |
| 70 | -0.58 | -0.025 | -0.11 | -0.40 | 0.29 | -0.32 | 0.056 |



编号: 02-00-012

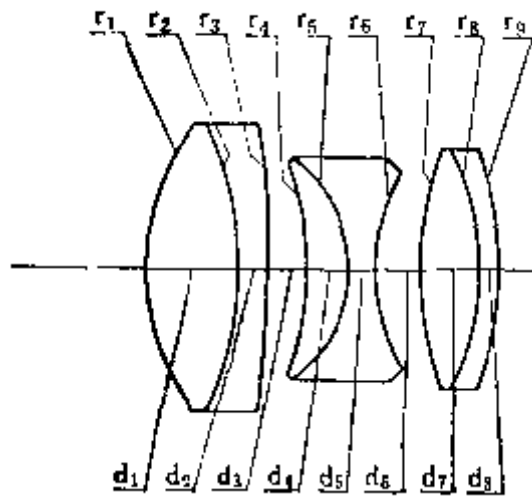
大 孔 径 物 镜

E. F. L = 100

B. F. L = 60.10

FNo. = 1.8

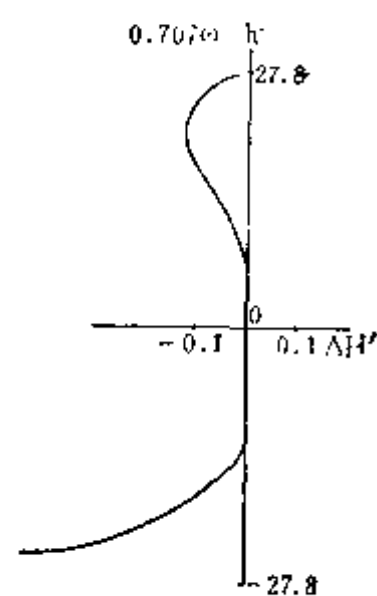
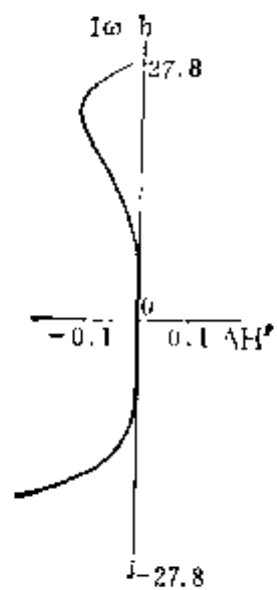
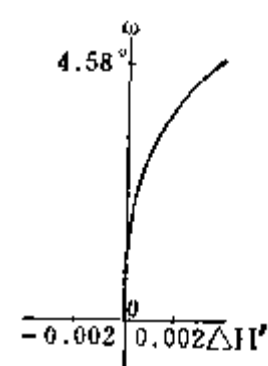
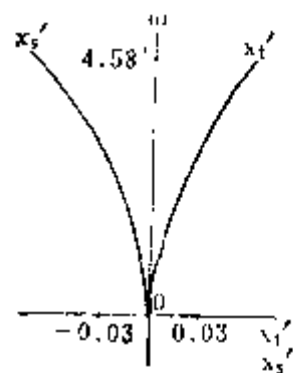
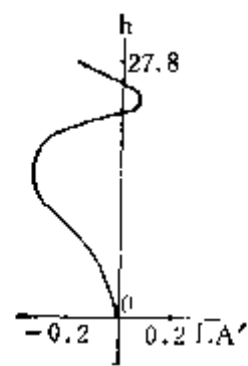
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|--------|-------|-------|------|----|-------|-------|-------|------|
| 1 | 48.8 | 17.98 | 1.624 | 58.2 | 6 | 37.1 | 8.99* | | |
| 2 | -69.3 | 5.72 | 1.622 | 36.1 | 7 | 81.7 | 11.44 | 1.624 | 58.2 |
| 3 | -208.4 | 7.85 | | | 8 | -47.8 | 4.09 | 1.541 | 47.2 |
| 4 | -53.7 | 8.17 | 1.624 | 58.2 | 9 | -63.2 | | | |
| 5 | -27.6 | 4.90 | 1.567 | 42.8 | | | | | |

8.99* = 5.00 + 3.99

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HJ | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|-----------------------------|------------|------------|
| | -0.32 | 0.0084 | 0.010 | -0.022 | 0.0019 | 8 | 0.045% |
| h 或 ω % | LA' | $\Delta H'$ | x_t | x_s | $\lambda_t^4 - \lambda_s^4$ | K_{T1}^4 | $K_{T0.7}$ |
| 100 | -0.19 | 0.0036 | 0.063 | 0.074 | 0.137 | | -0.17 |
| 70 | -0.33 | 0.0012 | 0.031 | -0.037 | 0.068 | | -0.11 |



编号: 02-00-013

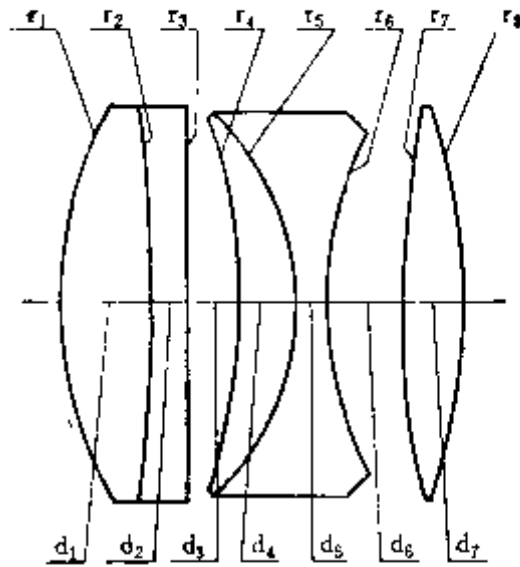
大 孔 径 物 镜

E. F. L = 100

B. F. L = 74.92

FNo. = 2.5

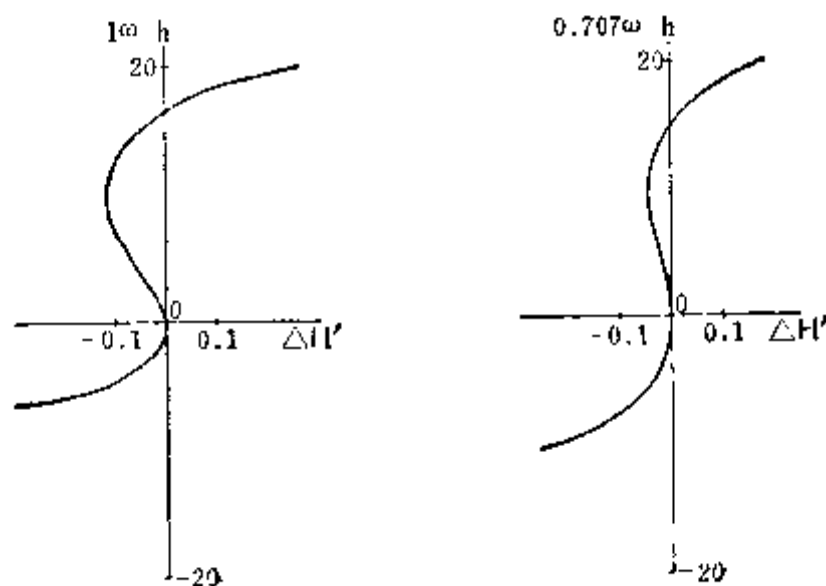
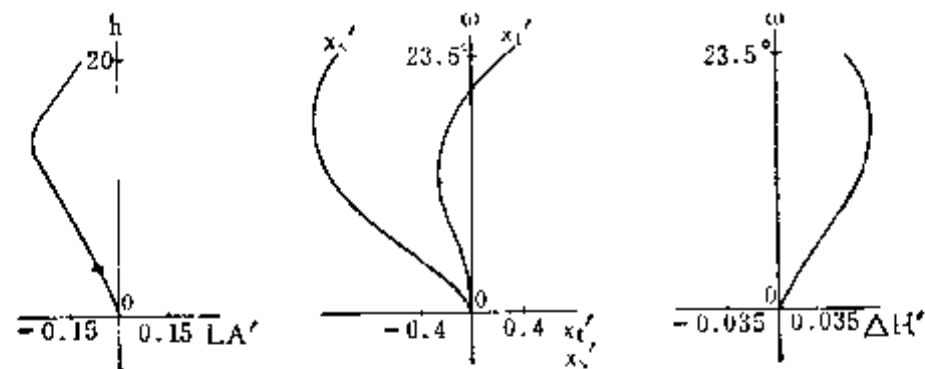
F. A. = $\pm 23.5^\circ$



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|--------|------|-------|------|----|-------|-------|-------|------|
| 1 | 43.3 | 9.60 | 1.624 | 58.2 | 5 | -27.8 | 3.20 | 1.567 | 42.8 |
| 2 | -160.0 | 4.00 | 1.622 | 36.1 | 6 | 38.0 | 8.16* | | |
| 3 | -560.0 | 5.84 | | | 7 | 95.2 | 6.40 | 1.624 | 58.2 |
| 4 | -61.5 | 6.20 | 1.624 | 44.8 | 8 | -65.4 | | | |

$$8.16^* = 4.50 + 3.66$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|--------------|-----------|-------------|
| | -0.006 | 0.018 | 0.014 | -0.28 | 0.13 | 43.47 | 0.13% |
| h 或 ω % | LA' | $\Delta H'$ | x_1 | x_6 | $x_1' - x_6$ | K_{T1}' | $K_{T0.7}'$ |
| 100 | -0.12 | 0.038 | 0.26 | -1.15 | 1.41 | | -1.01 |
| 70 | -0.27 | 0.074 | -0.26 | -1.16 | 0.90 | | -0.34 |



编号: 02-00-014

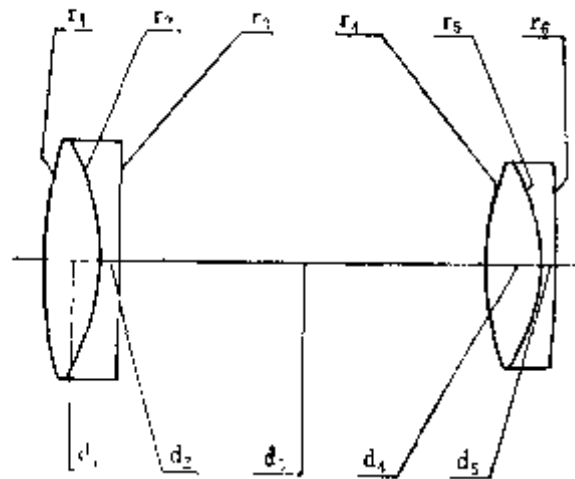
放映物镜

E. F. L = 100

B. F. L = 38.4

FNo. = 1.9

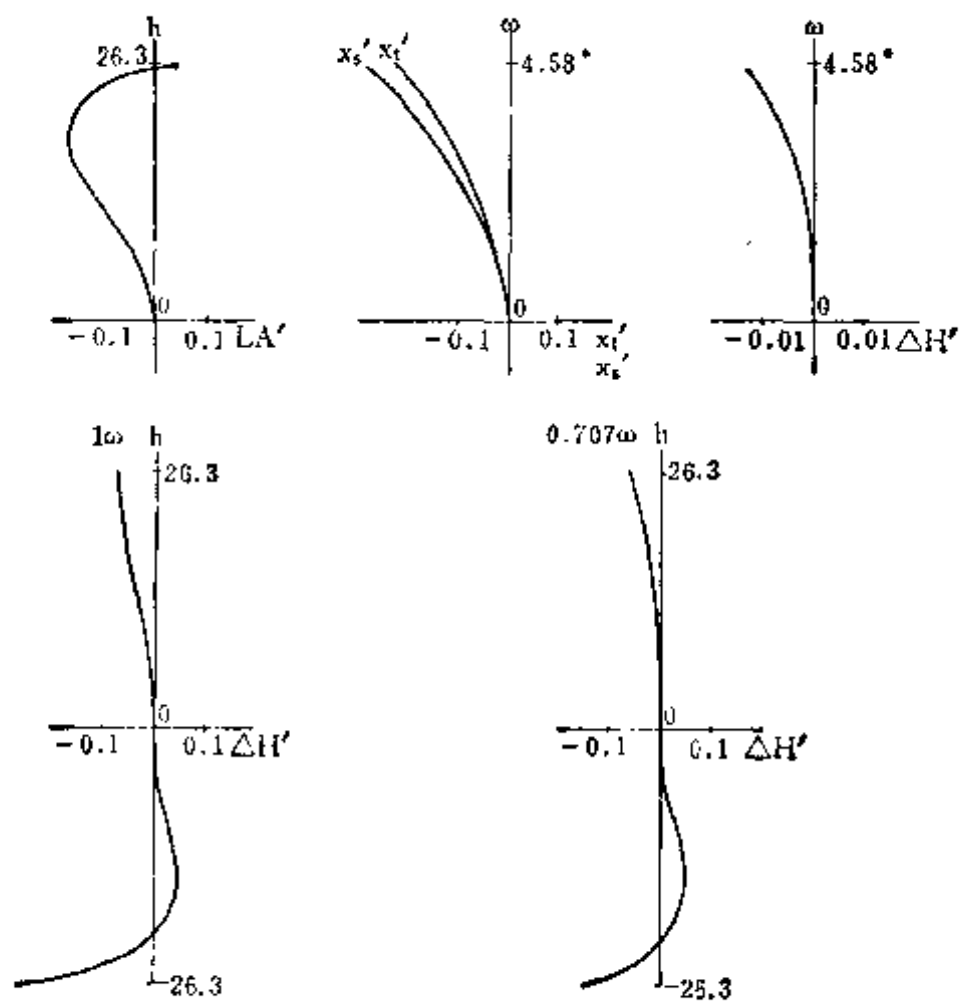
F. A. $\approx \pm 4.58^\circ$



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|-------|----------------|------|----|---------|------|----------------|------|
| 1 | 90.00 | 12.5 | 1.5799 | 53.8 | 4 | 68.00 | 11.5 | 1.5904 | 61.2 |
| 2 | -50.00 | 4.0 | 1.6130 | 36.9 | 5 | -42.00 | 3.0 | 1.6489 | 33.8 |
| 3 | ∞ | 79.5* | | | 6 | -386.92 | | | |

79.5* = 30.0 + 49.5

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------------|----------|------------|
| | -0.085 | 0.012 | 0.0033 | -0.043 | -0.0073 | 8 | -0.17% |
| h 或 ω % | LA' | $\Delta H'$ | x_t | λ_s | $x_t - \lambda_s^*$ | K_{T1} | $K_{T0.7}$ |
| 100 | 0.036 | -0.014 | -0.226 | -0.285 | 0.059 | -0.17 | -0.0076 |
| 70 | -0.18 | -0.0050 | -0.116 | -0.143 | 0.0268 | -0.10 | -0.0023 |



编号: 02-00-015

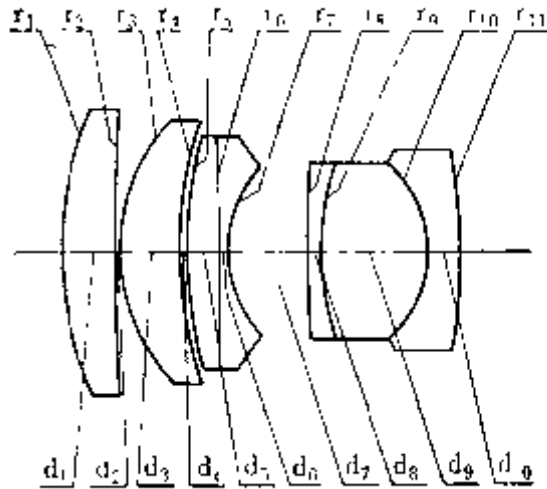
摄影物镜

E. F. L = 100

B. F. L = 44.81

FNo. = 2

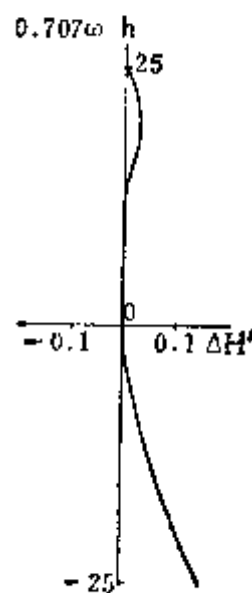
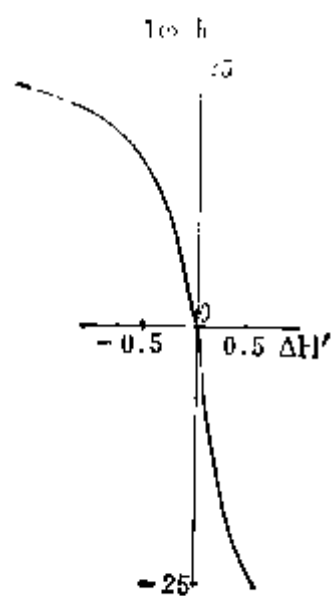
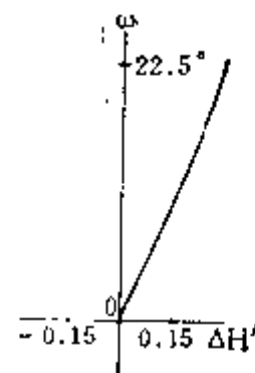
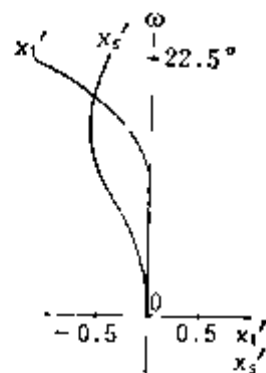
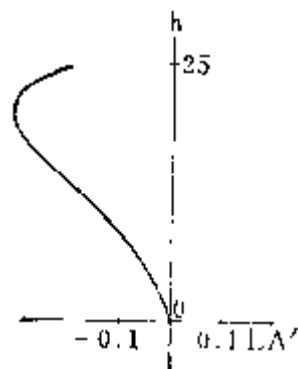
F. A. = $\pm 22.5^\circ$



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|---------|-------|----------------|----------------|----|---------|--------|----------------|----------------|
| 1 | 69.17 | 10.60 | 1.6221 | 58.1 | 7 | 24.40 | 15.60* | | |
| 2 | 450.51 | 0.10 | | | 8 | 788.13 | 2.97 | 1.5112 | 50.9 |
| 3 | 37.25 | 12.17 | 1.6706 | 47.2 | 9 | 53.75 | 20.93 | 1.7016 | 41.2 |
| 4 | 84.49 | 1.00 | | | 10 | -22.66 | 5.92 | 1.6429 | 47.8 |
| 5 | 88.84 | 6.92 | 1.4879 | 69.9 | 11 | -106.07 | | | |
| 6 | -654.79 | 1.76 | 1.7391 | 28.3 | | | | | |

$$15.60^* = 10.00 + 5.60$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | Hl | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|----------------|----------|------------|
| | -0.11 | 0.054 | 0.083 | -0.30 | 0.41 | 42.29 | 0.72% |
| h 或 ω % | LA' | $\Delta H'$ | x_t | x_s^* | $x_t' - x_s^*$ | K_{T1} | $k_{70.7}$ |
| 100 | -0.21 | 0.30 | -1.15 | -0.45 | -0.70 | -1.18 | -0.17 |
| 70 | -0.30 | 0.24 | -0.12 | -0.60 | 0.48 | 0.63 | 0.057 |



编号: 02-00-018

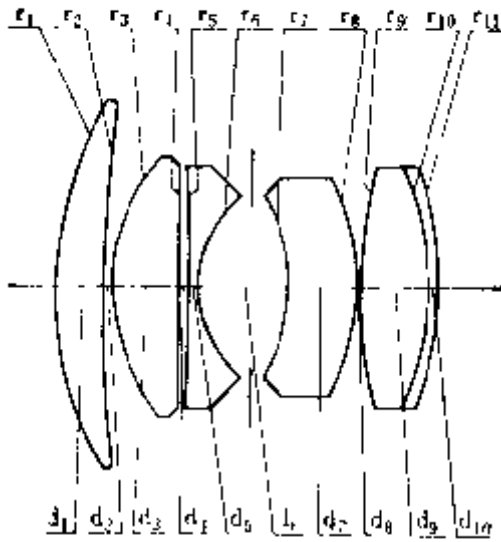
摄影物镜

E. F. L = 3

B. F. L = 1.883

FNo. = 1.35

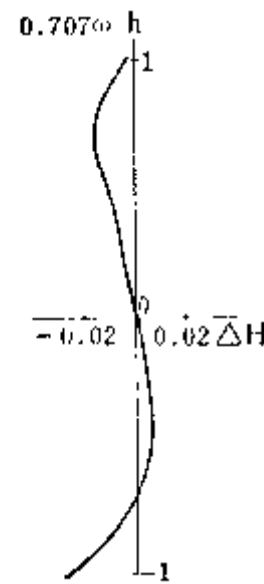
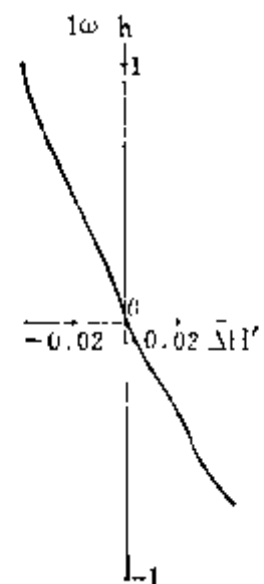
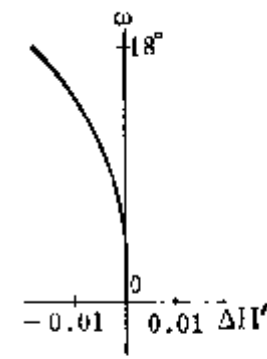
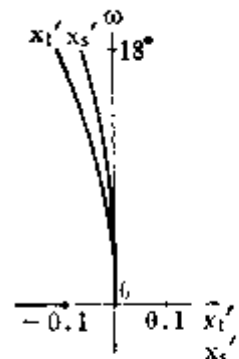
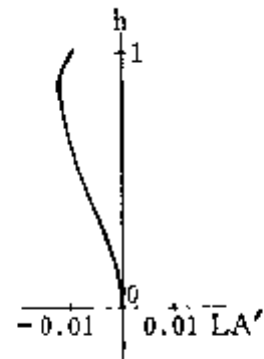
F. A. = $\pm 18^\circ$



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|----------|---------|--------|------|----|--------|--------|--------|------|
| 1 | 2.616 | 0.340 | 1.6230 | 57.1 | 7 | -1.214 | 0.492 | 1.6480 | 33.8 |
| 2 | 9.712 | 0.0486 | | | 8 | -1.700 | 0.0061 | | |
| 3 | 1.426 | 0.492 | 1.6230 | 57.1 | 9 | 3.398 | 0.492 | 1.6106 | 55.6 |
| 4 | ∞ | 0.0486 | | | 10 | -2.069 | 0.067 | 1.6480 | 46.5 |
| 5 | -19.420 | 0.067 | 1.5490 | 45.7 | 11 | -2.461 | | | |
| 6 | 0.886 | 0.6430* | | | | | | | |

0.6430* = 0.4200 + 0.2230

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|--------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.0070 | 0.000074 | -0.0038 | -0.012 | -0.0079 | 0.97 | -1.82% |
| h 或 ω | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{21} | $K'_{10.7}$ |
| 100 | -0.010 | 0.017 | -0.135 | -0.068 | -0.067 | | 0.0013 |
| 70 | -0.011 | -0.0056 | -0.060 | -0.035 | -0.024 | -0.013 | -0.0001 |



编号: 02-00-019

消球差、色差和象散的大孔径物镜

E. F. L = 100

B. F. L = 45.133

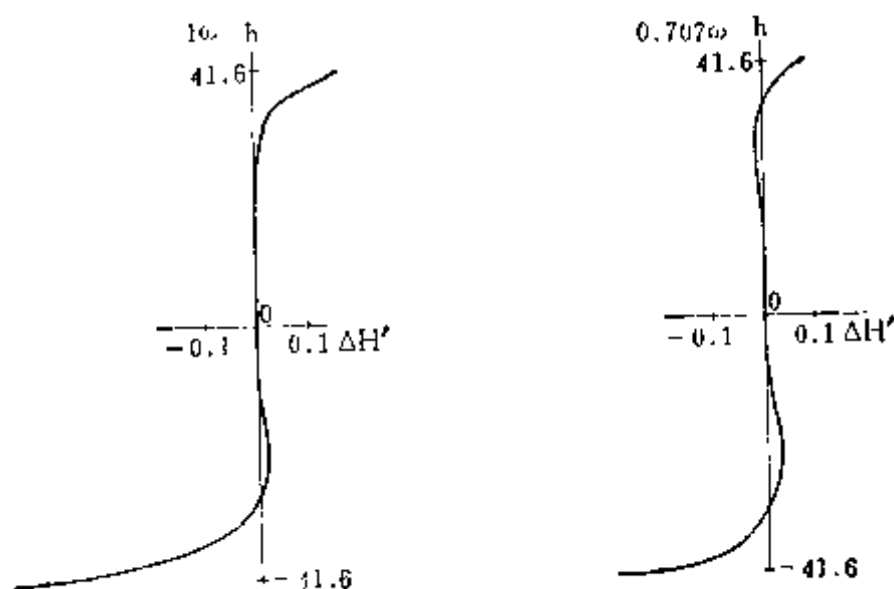
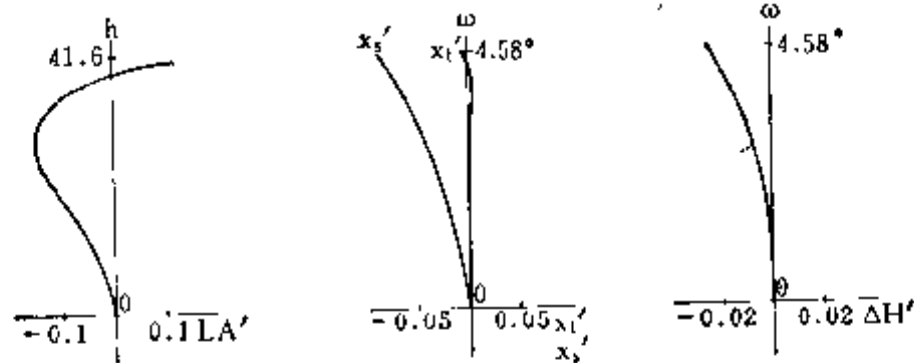
FNo. = 1.2

F. A. = $\pm 4.58^{\circ}$ **

| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|----------|--------|---------|------|----|----------|-------|---------|------|
| 1 | 96.980 | 12.55 | 1.61505 | 59.4 | 8 | -63.893 | 0.63 | | |
| 2 | 456.380 | 1.26 | | | 9 | 96.980 | 9.13 | 1.62020 | 56.2 |
| 3 | 54.480 | 23.96 | 1.61505 | 59.4 | 10 | ∞ | 0.63 | | |
| 4 | ∞ | 3.99 | 1.56810 | 46.7 | 11 | 142.280 | 2.86 | 1.62020 | 36.5 |
| 5 | 33.316 | 25.10* | | | 12 | 96.980 | 23.96 | 1.64230 | 44.8 |
| 6 | -46.208 | 5.36 | 1.63250 | 56.2 | 13 | -310.340 | | | |
| 7 | 63.893 | 26.24 | 1.62020 | 33.4 | | | | | |

25.10* = 18.00 + 7.10

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|----------|------------------|
| | -0.021 | 0.021 | 0.016 | -0.049 | -0.021 | 8 | -0.32% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K_{T1} | $K_{T0.7}$ |
| 100 | 0.2 | -0.026 | -0.00018 | -0.092 | 0.092 | -0.18 | 0.0054 |
| 70 | -0.16 | -0.0092 | 0.00064 | -0.046 | 0.047 | -0.11 | 0.0067 |



编号: 02-00-020

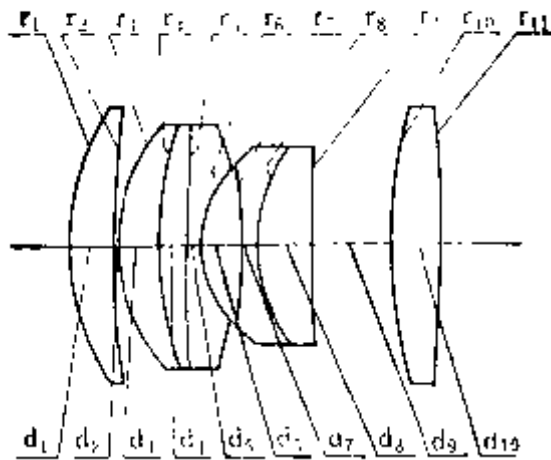
摄影物镜

E. F. L = 100

B. F. L = 41.3

FNo. = 2

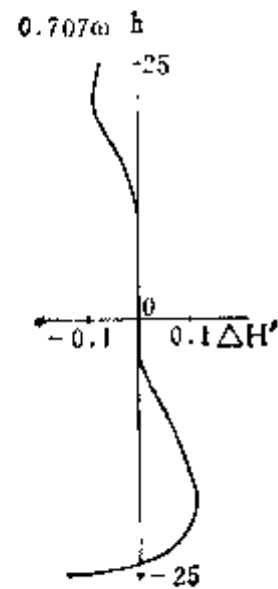
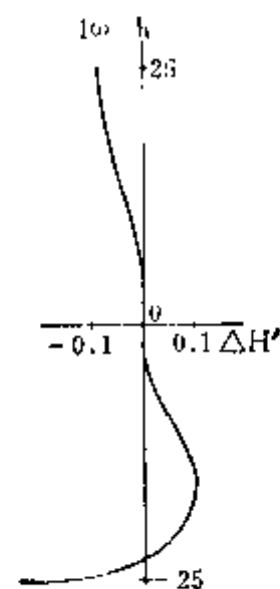
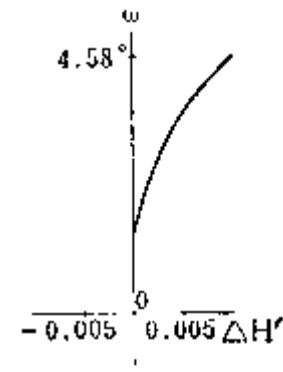
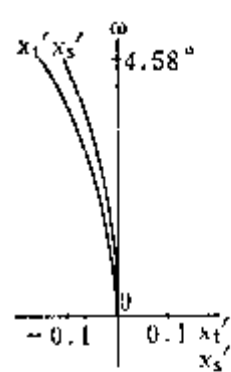
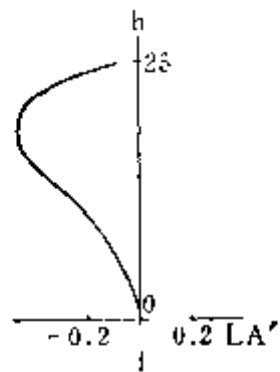
F. A. = $\pm 4.58^\circ$ **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|-------|-----|----------------|------|----|--------|-------|----------------|------|
| 1 | 51.8 | 8.0 | 1.6203 | 60.4 | 7 | -298.6 | 3.9 | 1.5017 | 56.5 |
| 2 | 179.3 | 0.6 | | | 8 | 30.2 | 10.8 | 1.6716 | 47.2 |
| 3 | 34.0 | 8.9 | 1.6716 | 47.2 | 9 | 285.9 | 15.6* | | |
| 4 | 76.4 | 5.0 | 1.5163 | 64.0 | 10 | 114.4 | 9.7 | 1.6716 | 47.2 |
| 5 | 707.3 | 2.8 | 1.6890 | 31.0 | 11 | -297.0 | | | |
| 6 | 22.3 | 7.2 | | | | | | | |

15.6* = 8.0 + 7.6

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.18 | 0.026 | 0.0035 | -0.010 | 0.0048 | 8 | 0.11% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.10 | 0.0092 | -0.15 | -0.10 | -0.044 | -0.17 | 0.023 |
| 70 | -0.48 | 0.0033 | -0.080 | -0.053 | -0.025 | -0.10 | 0.020 |



编号: 02-00-021

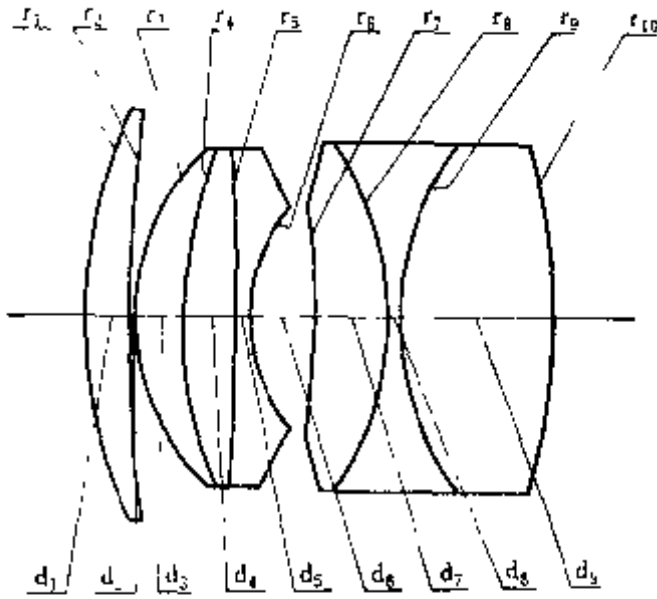
摄影物镜

E. F. L = 100

B. F. L = 54.53

FN₀ = 2

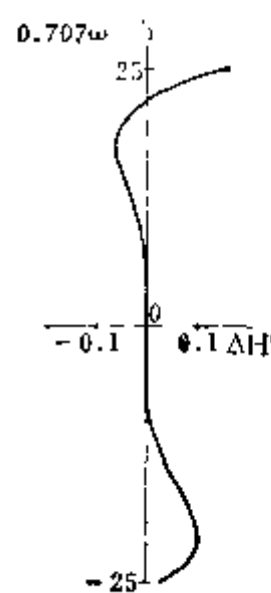
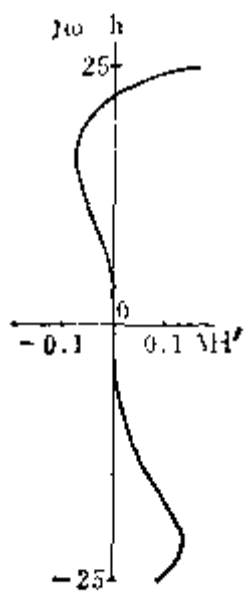
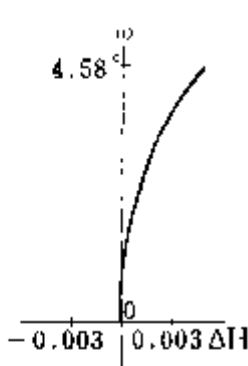
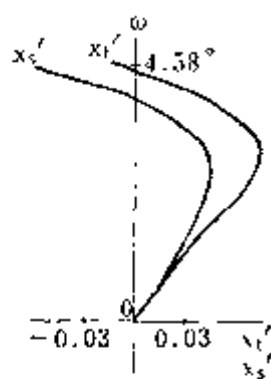
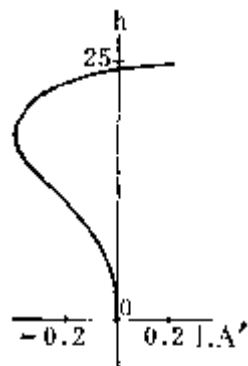
F. A. = ±4.58°**



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|---------|------|----------------|----------------|----|---------|-------|----------------|----------------|
| 1 | 67.54 | 6.79 | 1.6204 | 60.3 | 6 | 24.08 | 9.44* | | |
| 2 | 380.08 | 0.38 | | | 7 | -128.76 | 10.76 | 1.6204 | 60.3 |
| 3 | 34.01 | 7.17 | 1.7016 | 41.2 | 8 | -44.37 | 1.13 | 1.5174 | 52.4 |
| 4 | 63.22 | 7.55 | 1.5400 | 59.6 | 9 | 41.14 | 22.46 | 1.6689 | 48.8 |
| 5 | -481.81 | 1.89 | 1.6883 | 31.2 | 10 | -89.32 | | | |

9.44* = 7.50 + 1.94

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HJ | QP (1ω) |
|---------|-----------------|-----------------|------------------|------------------|-------------------------------------|-------------------|---------------------|
| | -0.20 | -0.0062 | 0.0029 | -0.010 | 0.0023 | 8 | 0.059% |
| h 或 ω % | LA' | ΔH' | x ₁ ' | x ₂ ' | x ₁ ' - x ₂ ' | K ₁₁ ' | K _{11.7} ' |
| 100 | 0.21 | 0.0047 | -0.014 | -0.060 | 0.046 | 0.12 | 0.011 |
| 70 | -0.42 | 0.0018 | 0.069 | 0.046 | 0.023 | 0.085 | 0.0068 |



编号: 02-00-022

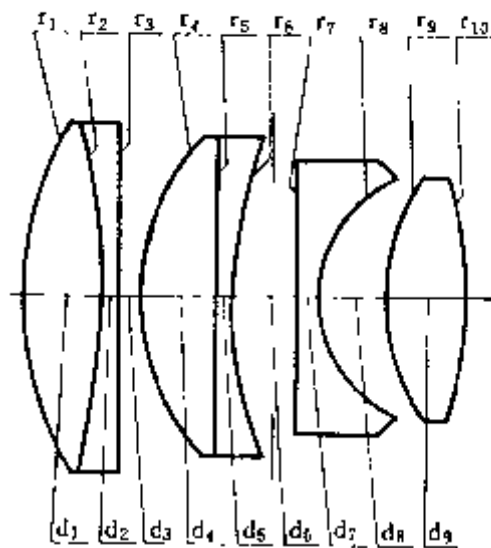
用于摄影或放映的物镜

E. F. L = 100

B. F. L = 35.23

FNo. = 1.3

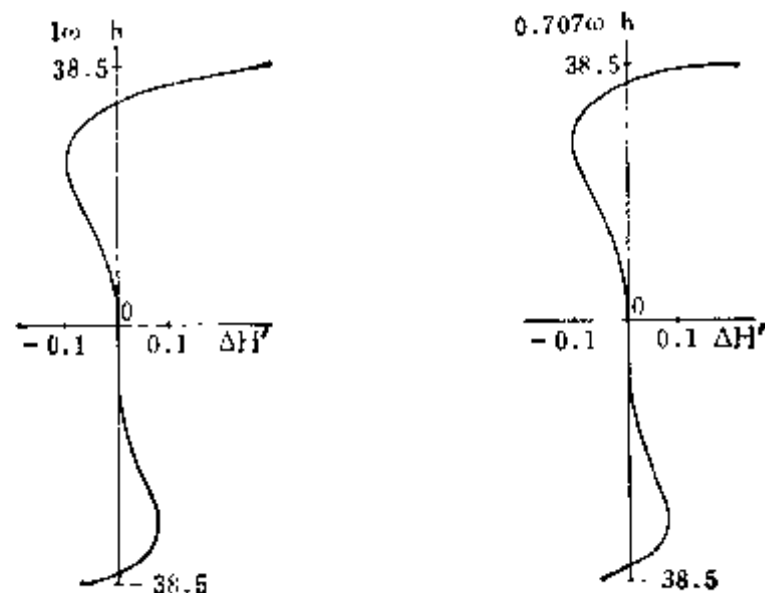
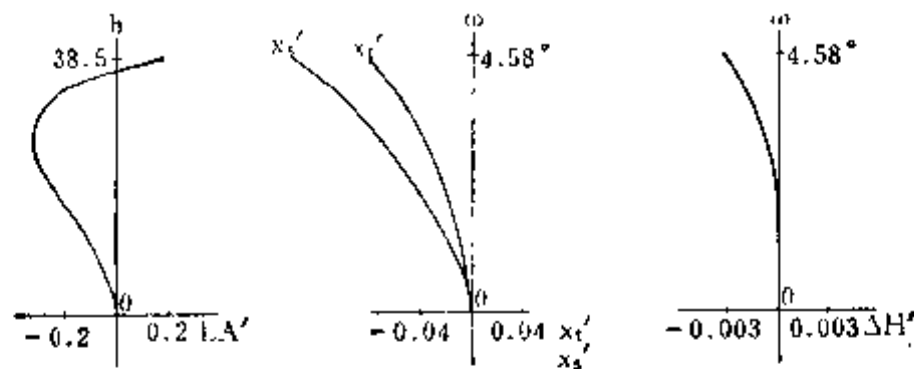
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|----------|-------|----------------|----------------|----|----------|--------|----------------|----------------|
| 1 | 74.34 | 16.64 | 1.5338 | 55.4 | 6 | 92.96 | 13.90* | | |
| 2 | -158.04 | 3.72 | 1.6545 | 33.8 | 7 | ∞ | 4.60 | 1.6080 | 46.2 |
| 3 | ∞ | 4.60 | | | 8 | 28.08 | 14.68 | | |
| 4 | 50.40 | 16.64 | 1.6204 | 60.3 | 9 | 45.50 | 16.64 | 1.6074 | 56.7 |
| 5 | -929.63 | 3.72 | 1.7283 | 28.3 | 10 | -96.19 | | | |

$$13.90^* = 8.40 + 5.50$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.34 | -0.025 | 0.011 | -0.058 | -0.00090 | 8 | -0.040% |
| h 或 ω % | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{T1} | $K'_{10.7}$ |
| 100 | 0.21 | -0.0032 | -0.085 | -0.154 | 0.069 | 0.11 | -0.015 |
| 70 | -0.34 | -0.00077 | -0.040 | -0.077 | 0.037 | 0.081 | -0.011 |



编号: 02-00-023

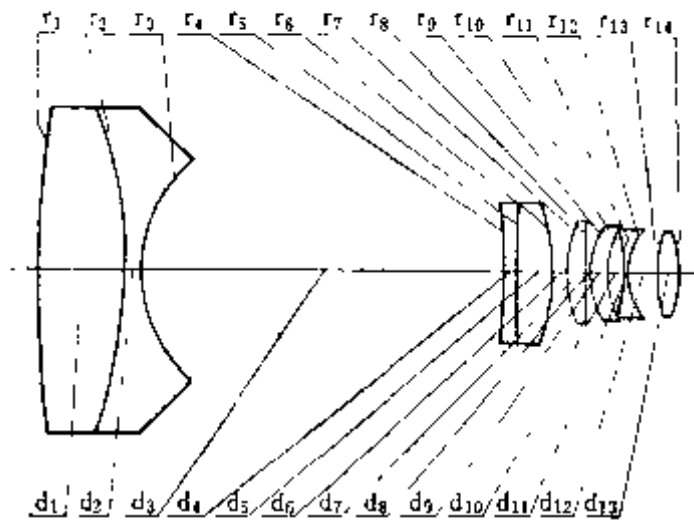
六组元大孔径物镜

E.F.L = 1

B.F.L = 1.316

FNo. = 1.9

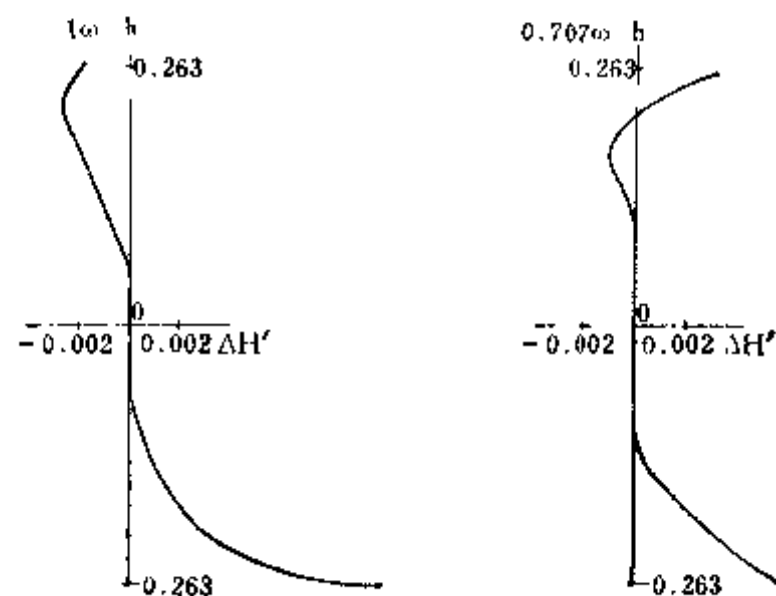
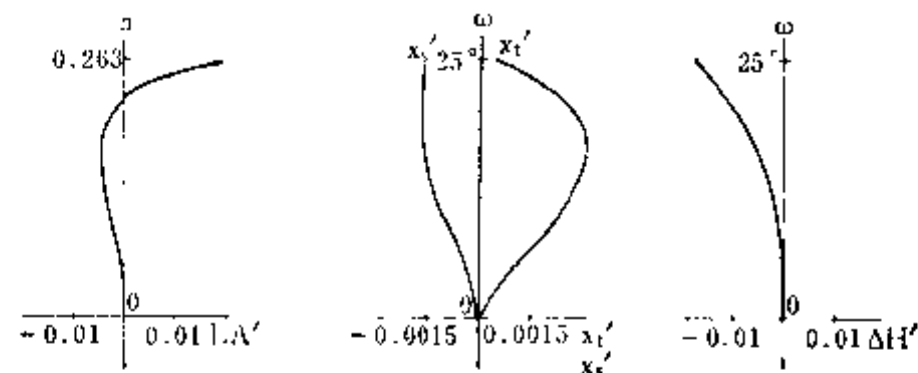
F.A. = $\pm 25^\circ$



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|--------|-------|----------------|----------------|----|---------|--------|----------------|----------------|
| 1 | 13.320 | 0.925 | 1.6727 | 32.2 | 8 | -22.940 | 0.004 | | |
| 2 | -5.027 | 0.182 | 1.5101 | 63.4 | 9 | 0.840 | 0.217 | 1.6204 | 60.3 |
| 3 | 1.600 | 3.880 | | | 10 | 1.077 | 0.148 | | |
| 4 | -8.158 | 0.182 | 1.6727 | 32.2 | 11 | -2.800 | 0.062 | 1.6990 | 30.1 |
| 5 | 26.990 | 0.367 | 1.5101 | 63.4 | 12 | 0.722 | 0.298* | | |
| 6 | -2.595 | 0.147 | | | 13 | 2.010 | 0.235 | 1.6385 | 55.5 |
| 7 | 1.406 | 0.220 | 1.6204 | 60.3 | 14 | -1.101 | | | |

0.298* = 0.150 + 0.148

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP (1%) |
|------|--------------|--------------|------------------|------------------|-------------------------------------|-------------------|---------------------|
| | -0.0031 | -0.00017 | 0.0010 | -0.0016 | -0.0094 | 0.46 | -3.66% |
| 上或ω% | LA' | ΔH' | x ₁ ' | x ₂ ' | x ₁ ' - x ₂ ' | K _{T1} ' | K _{T0.7} ' |
| 100 | 0.018 | -0.017 | 0.0006 | -0.0016 | 0.0022 | 0.0038 | -0.000034 |
| 70 | -0.0050 | -0.0066 | 0.0034 | -0.0017 | 0.0051 | 0.0044 | 0.00033 |



编号: 02-00-024

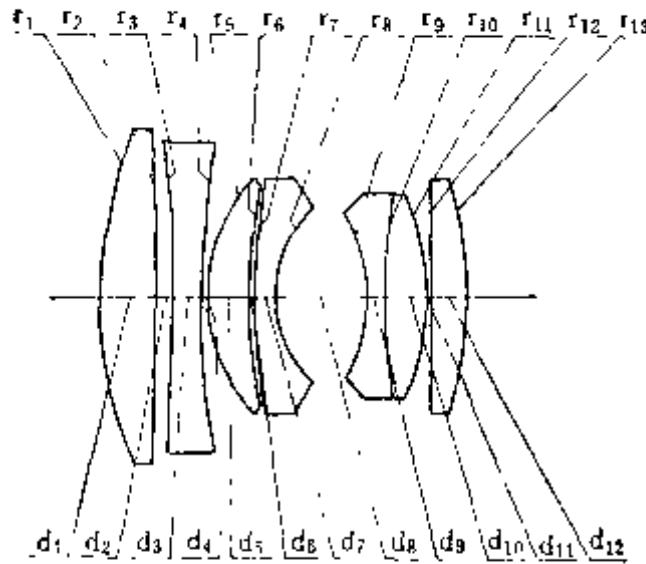
摄影物镜

E. F. L = 100

B. F. L = 61.47

FN₀ = 2

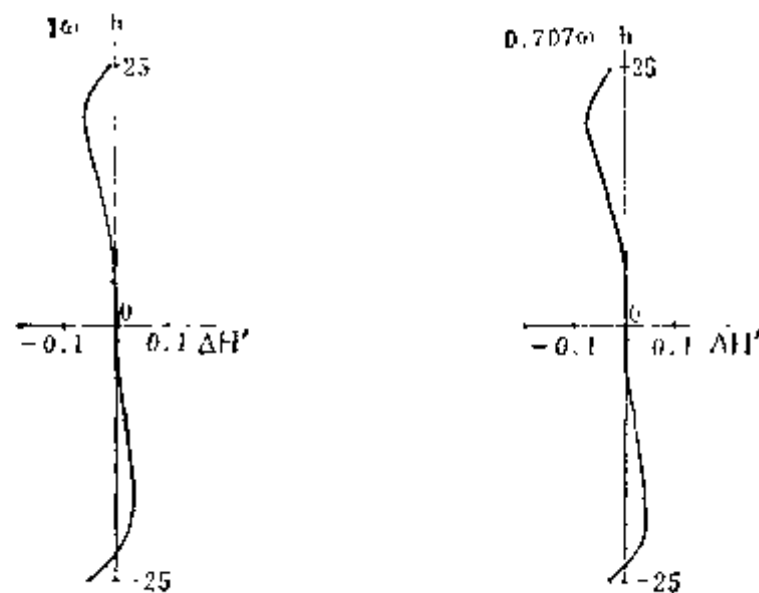
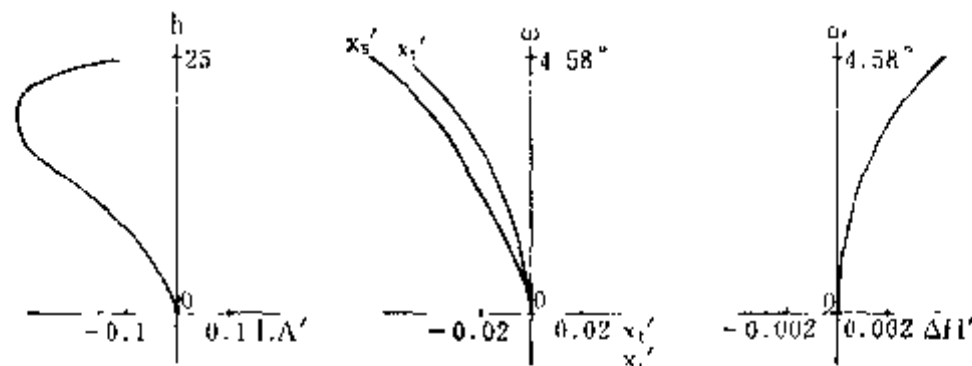
F. A. = ± 4.58° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|--------|----------------|------|----|--------|---------|----------------|------|
| 1 | 82.16 | 10.100 | 1.69100 | 54.9 | 8 | 24.76 | 18.160* | | |
| 2 | -440.92 | 2.900 | | | 9 | -36.12 | 3.770 | 1.58144 | 10.8 |
| 3 | -364.46 | 6.870 | 1.62237 | 36.1 | 10 | 132.85 | 8.100 | 1.69100 | 54.9 |
| 4 | 209.11 | 0.192 | | | 11 | -54.35 | 0.192 | | |
| 5 | 33.68 | 8.480 | 1.69100 | 54.9 | 12 | 744.71 | 6.910 | 1.69100 | 54.9 |
| 6 | 109.64 | 0.515 | | | 13 | -78.85 | | | |
| 7 | 145.08 | 4.060 | 1.60140 | 38.3 | | | | | |

18.160* = 9.000 + 9.160

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | Hl | QP (1ω) |
|---------|-----------------|-----------------|-----------------|-----------------|---------------------------------|-----------------|-------------------|
| | -0.12 | -0.0034 | 0.00084 | -0.0088 | 0.0021 | 8 | 0.053% |
| h 或 ω % | LA' | ΔH' | x _t | x _s | x ₁ - x ₂ | K ₁₁ | K _{10.7} |
| 100 | -0.11 | 0.0042 | -0.048 | -0.062 | 0.014 | -0.048 | -0.016 |
| 70 | -0.30 | 0.0015 | -0.024 | -0.031 | 0.0067 | -0.034 | -0.011 |



编号: 02-00-025

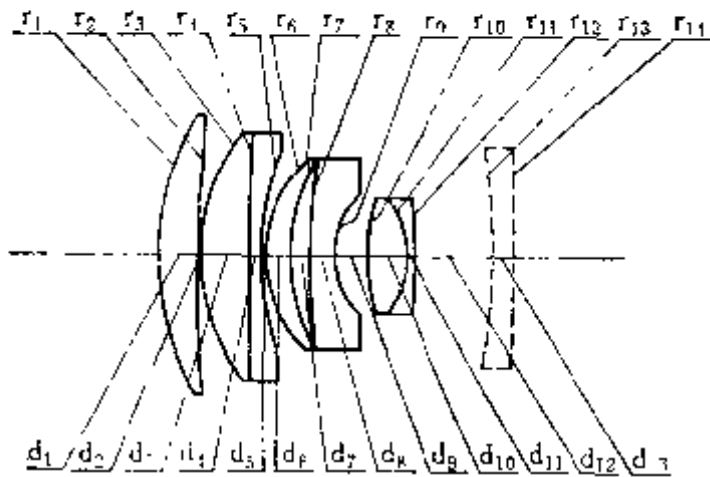
x 光屏图象成象用的物镜

E. F. L = 100

B. F. L = -7.4

FNo. = 1

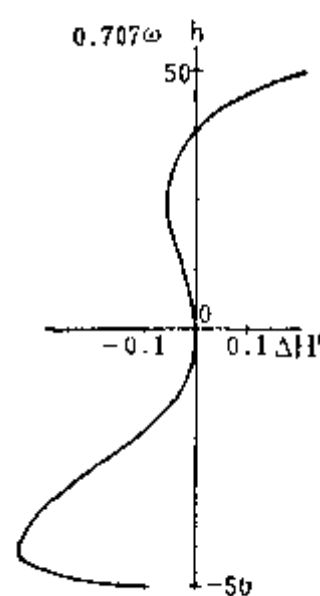
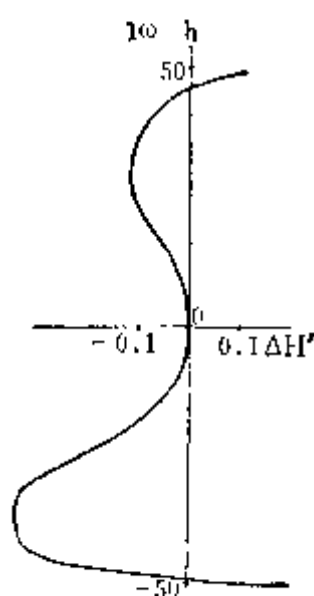
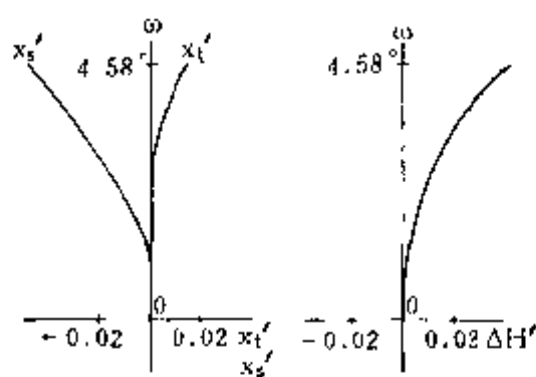
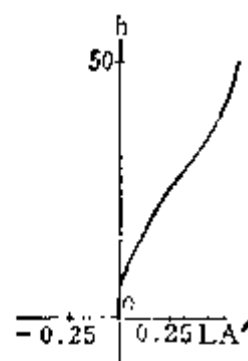
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | n_D | n_F | 序号 | r | d | n_D | n_F |
|----|-------|-------|---------|---------|----|----------|--------|---------|---------|
| 1 | 103.2 | 15.80 | 1.62470 | 1.62960 | 8 | 329.1 | 8.98 | 1.74727 | 1.75980 |
| 2 | 748.2 | 0.30 | | | 9 | 32.4 | 12.47* | | |
| 3 | 79.4 | 18.72 | 1.69353 | 1.69928 | 10 | 75.3 | 16.19 | 1.72637 | 1.73524 |
| 4 | 101.6 | 5.37 | 1.74727 | 1.75980 | 11 | -35.7 | 2.28 | 1.63084 | 1.63912 |
| 5 | 120.7 | 0.30 | | | 12 | -248.2 | 31.24 | | |
| 6 | 49.3 | 10.89 | 1.69353 | 1.69928 | 13 | -246.1 | 7.67 | 1.51824 | 1.52191 |
| 7 | 76.7 | 7.67 | | | 14 | ∞ | | | |

$$12.47^* = 7.00 + 5.47$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | 0.45 | -0.22 | 0.014 | -0.041 | 0.044 | 8 | 0.55% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{11} | $K'_{ru.7}$ |
| 100 | 0.57 | 0.014 | 0.014 | -0.019 | 0.063 | 0.13 | -0.23 |
| 70 | 0.42 | 0.015 | 0.0020 | -0.026 | 0.028 | 0.065 | -0.16 |



编号: 02-00-027

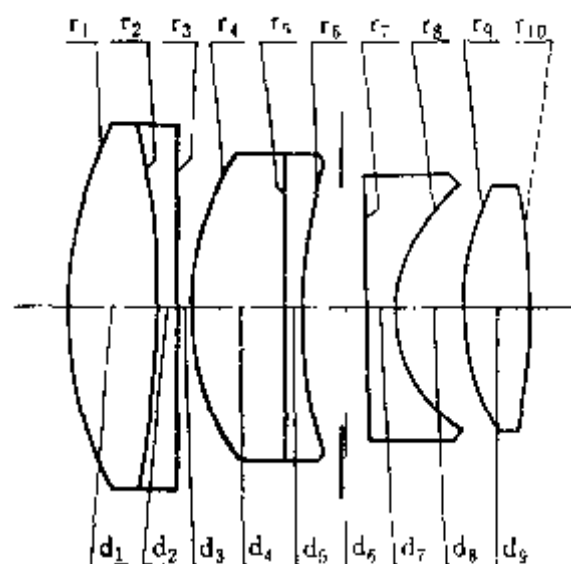
用于摄影或放映的物镜

E. F. L = 100

B. F. L = 34.88

FN₀ = 1.3

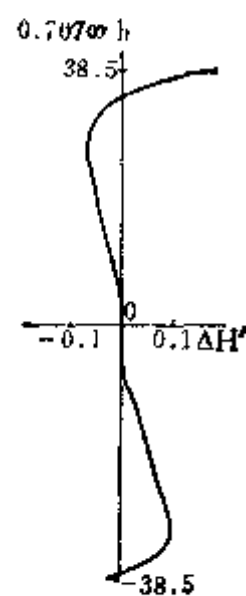
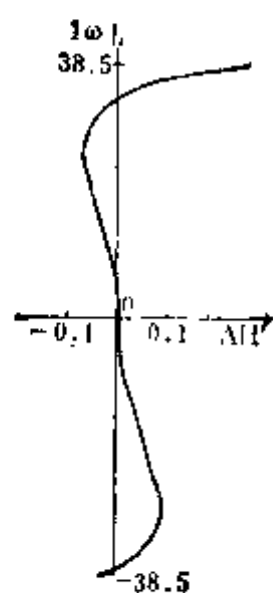
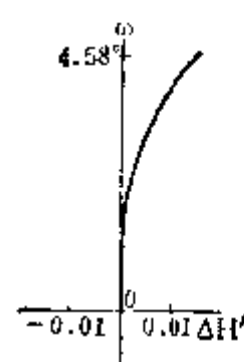
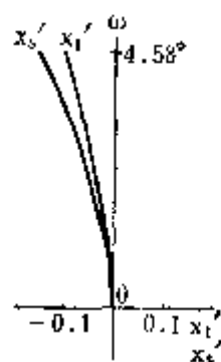
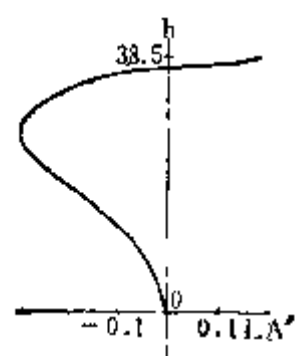
F. A. = ± 4.58' **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|-------|----------------|------|----|---------|--------|----------------|------|
| 1 | 78.90 | 17.76 | 1.5338 | 55.4 | 6 | 98.64 | 12.82* | | |
| 2 | -167.68 | 3.94 | 1.7283 | 28.3 | 7 | ∞ | 5.92 | 1.6073 | 49.2 |
| 3 | -1183.62 | 2.96 | | | 8 | 28.60 | 12.82 | | |
| 4 | 50.80 | 18.74 | 1.6230 | 58.1 | 9 | 47.34 | 13.32 | 1.6074 | 56.7 |
| 5 | -986.34 | 3.94 | 1.7283 | 28.3 | 10 | -108.50 | | | |

$$12.82^* = 7.82 + 5.00$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1ω) |
|--------|--------------|--------------|------------------|------------------|-------------------------------------|-------------------|---------------------|
| | -0.30 | -0.012 | 0.0071 | -0.055 | 0.011 | 8 | 0.17% |
| h 或 ω% | IA' | ΔH' | x _t ' | x _s ' | x _t ' - x _s ' | K _{T1} ' | K _{T0.7} ' |
| 100 | 0.18 | 0.014 | -0.10 | -0.15 | 0.048 | 0.11 | 0.0042 |
| 70 | -0.30 | 0.0053 | -0.055 | -0.079 | 0.024 | 0.071 | 0.00032 |



编号: 02-00-028

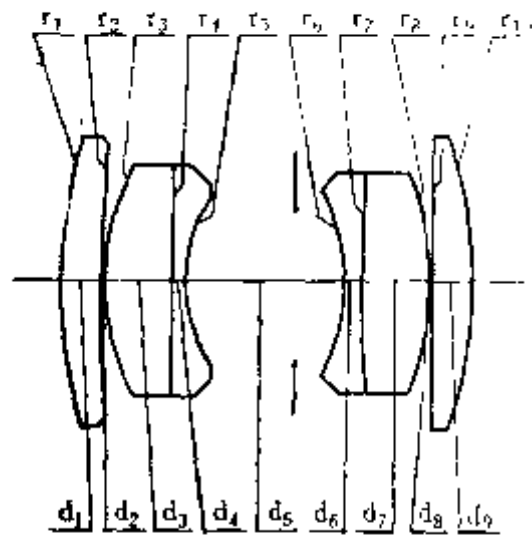
多组元替换透镜系统

E. F. L = 1.293

B. F. L = 0.946

FNo. = 2

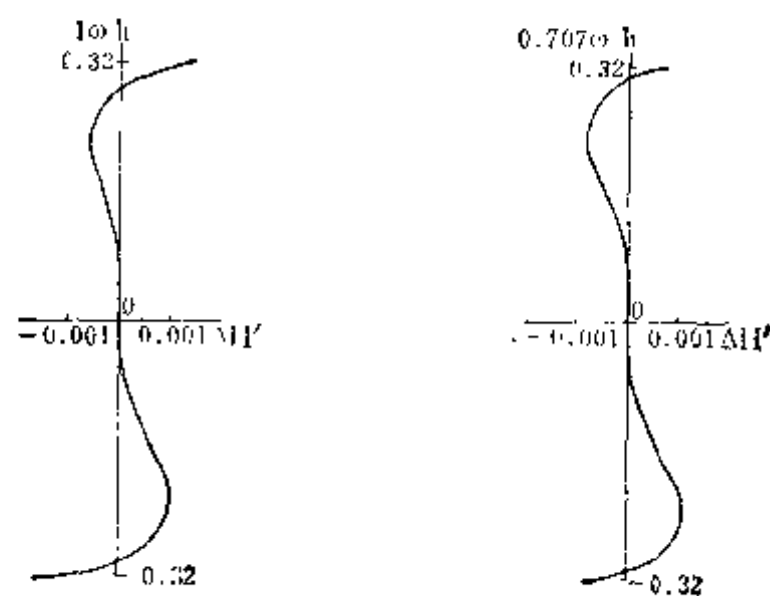
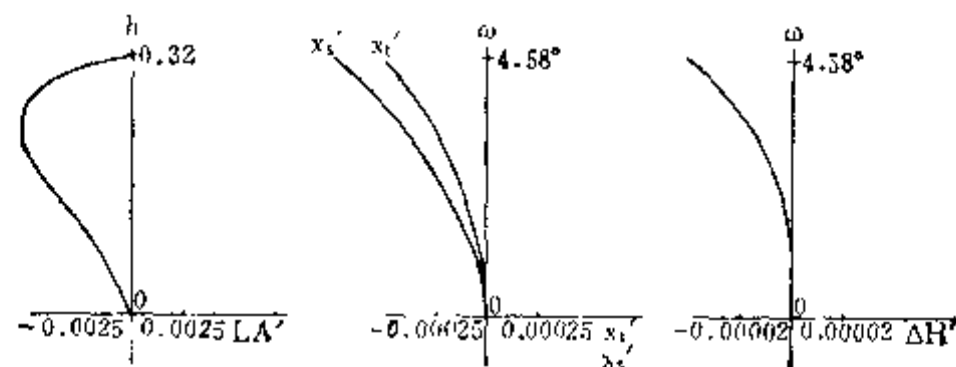
F. A. = $\pm 4.58''$



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|----------|---------|--------|------|----|----------|--------|--------|------|
| 1 | 0.9758 | 0.0849 | 1.6667 | 48.4 | 6 | -0.3816 | 0.0315 | 1.6477 | 33.9 |
| 2 | 2.8326 | 0.0027 | | | 7 | 5.9778 | 0.1355 | 1.6910 | 54.8 |
| 3 | 0.4222 | 0.1342 | 1.6584 | 50.8 | 8 | -0.5411 | 0.0014 | | |
| 4 | ∞ | 0.0271 | 1.6513 | 38.5 | 9 | ∞ | 0.0740 | 1.6700 | 47.2 |
| 5 | 0.3134 | 0.3096* | | | 10 | -0.8213 | | | |

0.3096* = 0.2137 + 0.0959

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | -0.0023 | 0.000036 | 0.000013 | -0.00010 | -0.000019 | 0.10 | -0.039% |
| h 或 $\omega\%$ | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.000067 | -0.000040 | -0.00055 | -0.00076 | 0.00021 | -0.00024 | 0.00014 |
| 70 | -0.0057 | -0.000014 | -0.00027 | -0.00038 | 0.00011 | -0.000065 | 0.00012 |



编号: 02-00-029

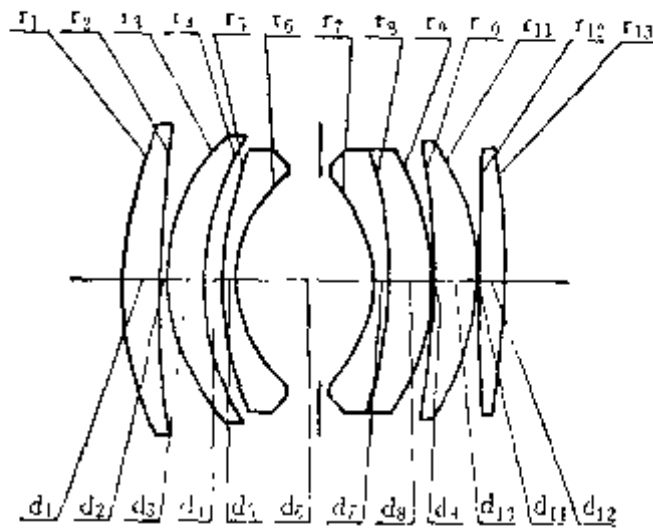
短的大孔径摄影物镜

E. F. L = 1

B. F. L = 0.741

FN₀ = 1.4

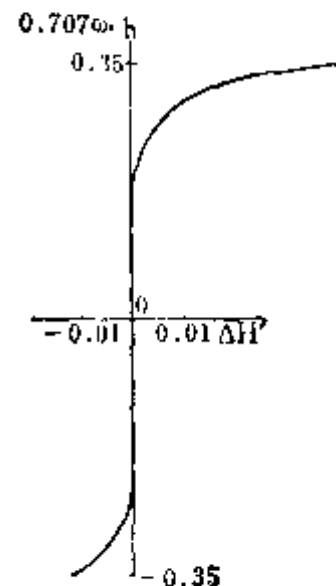
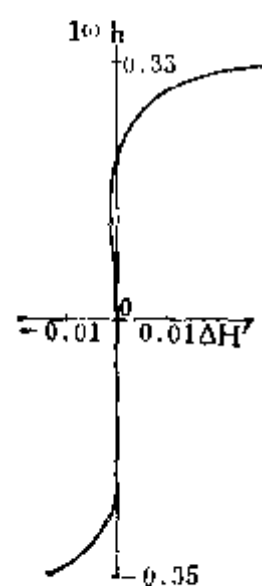
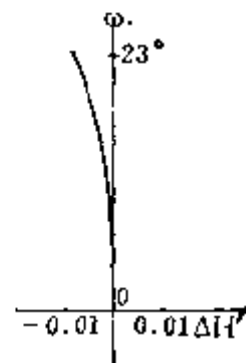
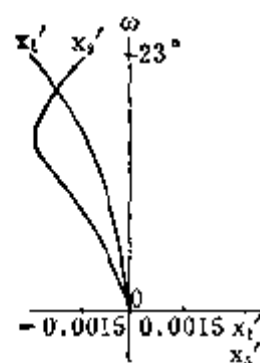
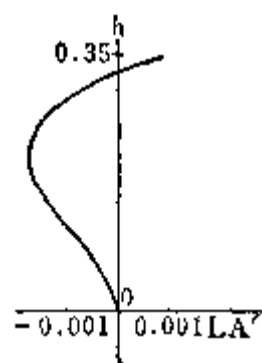
F. A. = ± 23°



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|----|----------|---------|--------|-------|----|----------|---------|--------|------|
| 1 | 0.78185 | 0.08861 | 1.8348 | 42.8 | 8 | -0.99807 | 0.09981 | 1.8061 | 10.8 |
| 2 | 2.59815 | 0.00232 | | | 9 | -0.52703 | 0.00193 | | |
| 3 | 0.42198 | 0.08784 | 1.8061 | 40.8 | 10 | -1.50994 | 0.09691 | 1.713 | 54.0 |
| 4 | 0.60180 | 0.03456 | | | 11 | -0.50290 | 0.00232 | | |
| 5 | 0.69415 | 0.02606 | 1.7847 | 26.22 | 12 | 3.38224 | 0.05174 | 1.713 | 54.0 |
| 6 | 0.28654 | 0.30888 | | | 13 | -1.86805 | | | |
| 7 | -0.31581 | 0.02645 | 1.7847 | 25.7 | | | | | |

$$0.30888 = 0.15888 + 0.15000$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HJ | QP (1°) |
|--------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | -0.0025 | -0.000050 | 0.00066 | -0.0029 | -0.0052 | 0.42 | -1.95% |
| 1 或 ω% | LA' | ΔH' | x'_t | x_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T1.7}$ |
| 100 | 0.00093 | -0.0082 | -0.0050 | -0.0015 | -0.0015 | 0.0087 | 0.00053 |
| 70 | -0.0016 | -0.0029 | -0.0015 | -0.0030 | 0.0015 | 0.013 | 0.0010 |



编号: 02-00-030

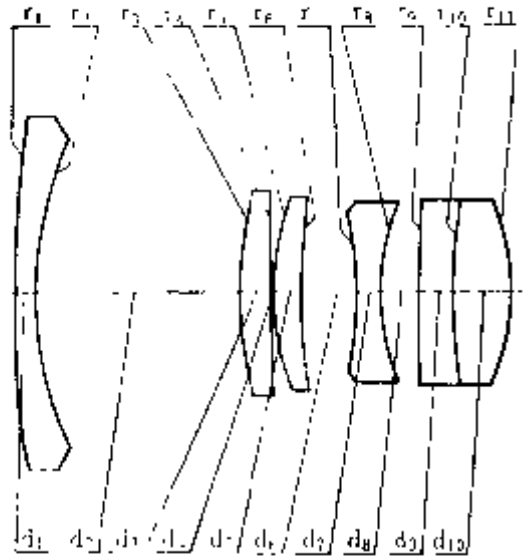
摄影物镜

E. F. L = 1

B. F. L = 1.0095

FN₀ = 2.5

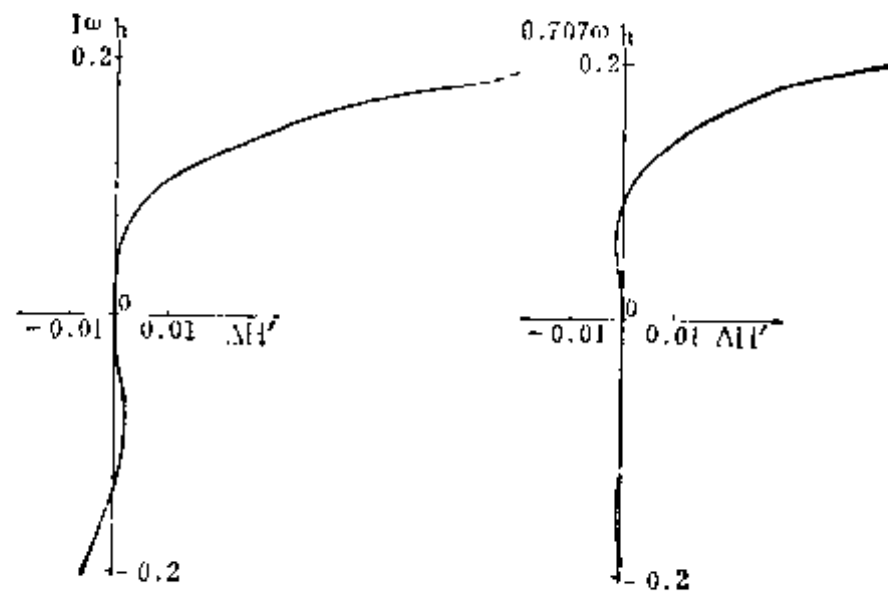
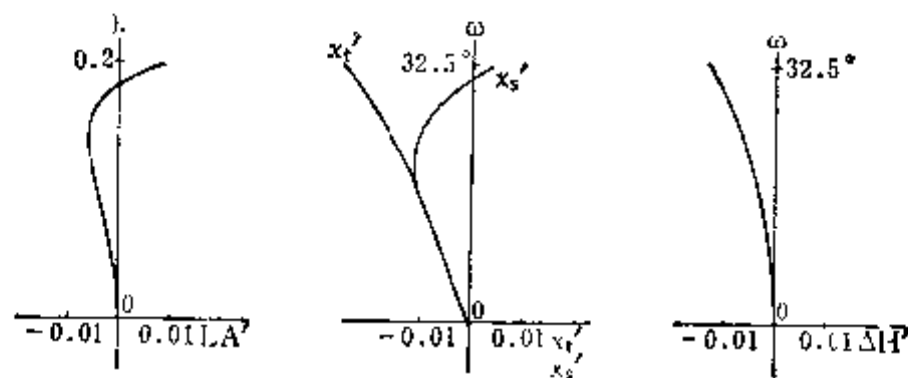
F. A. = ± 32.5°



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|----|---------|--------|---------|------|----|---------|-------|---------|------|
| 1 | 2.9000 | 0.040 | 1.51821 | 65.2 | 7 | -0.9400 | 0.055 | 1.68893 | 31.1 |
| 2 | 0.7890 | 0.440 | | | 8 | 0.5230 | 0.082 | | |
| 3 | 0.9300 | 0.070 | 1.74400 | 44.7 | 9 | 3.8500 | 0.070 | 1.66680 | 31.1 |
| 4 | -5.9000 | 0.002 | | | 10 | 1.4000 | 0.120 | 1.69100 | 54.9 |
| 5 | 0.6135 | 0.058 | 1.69347 | 53.5 | 11 | -0.5290 | | | |
| 6 | 1.4000 | 0.113* | | | | | | | |

$$0.113^* = 0.060 + 0.053$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HH | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------------------|-------|------------|
| | -0.0015 | -0.0010 | -0.00019 | -0.0029 | -0.0061 | 0.62 | -2.34% |
| h 或 $\omega\%$ | LA' | ΔH' | λ_t | λ_s | $\lambda_t' - \lambda_s'$ | K_T | $F_{T0.7}$ |
| 100 | 0.0084 | -0.014 | -0.0250 | 0.0034 | -0.0284 | -0.19 | 0.013 |
| 70 | -0.0058 | -0.0057 | -0.016 | -0.012 | -0.0034 | 0.031 | 0.0038 |



编号: 02-00-031

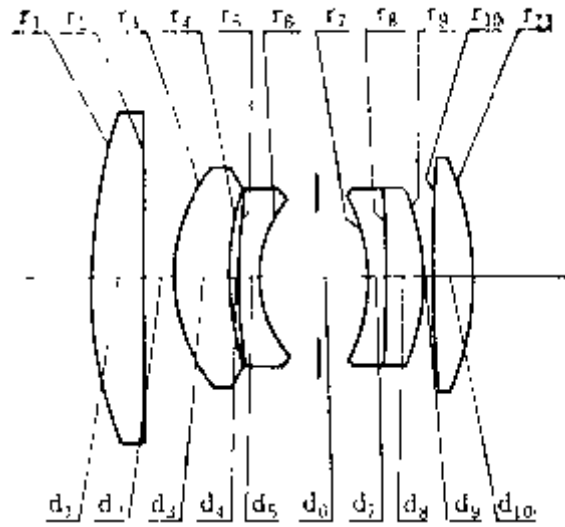
大 孔 径 物 镜

E. F. L = 1

B. F. L = 0.606

FNo. = 2

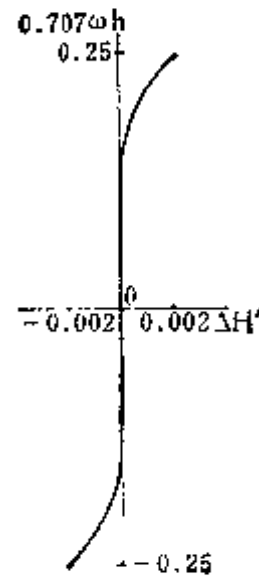
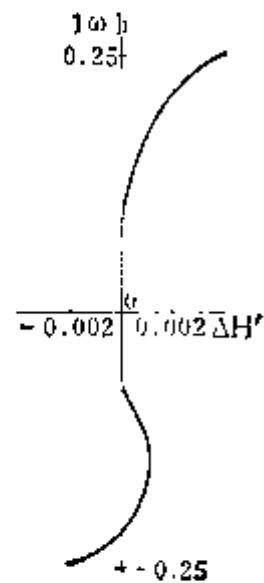
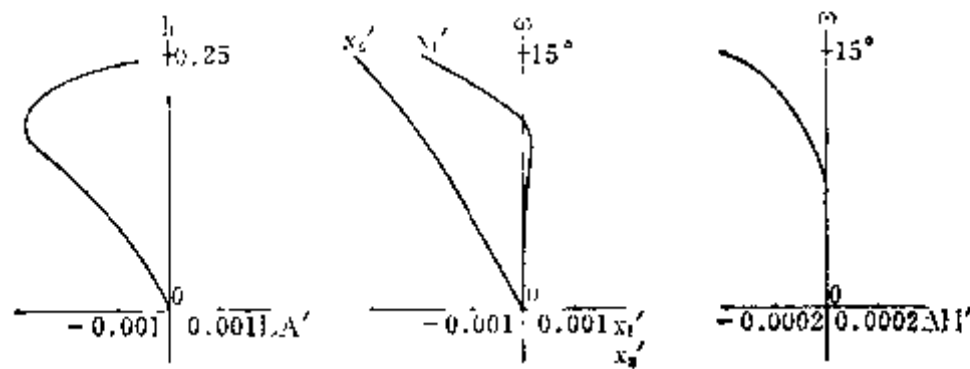
F. A. = $\pm 15^\circ$



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|-----------|---------|---------|------|----|----------|--------|---------|------|
| 1 | 0.96154 | 0.1017 | 1.62554 | 57.9 | 7 | -0.32173 | 0.0321 | 1.65221 | 33.6 |
| 2 | -11.85620 | 0.0569 | | | 8 | -2.88460 | 0.0769 | 1.66151 | 50.6 |
| 3 | 0.32692 | 0.1119 | 1.62287 | 60.1 | 9 | -0.43454 | 0.0100 | | |
| 4 | 0.64520 | 0.0125 | | | 10 | 1.92310 | 0.0769 | 1.66151 | 50.6 |
| 5 | 1.10960 | 0.0467 | 1.65221 | 33.6 | 11 | -0.69000 | | | |
| 6 | 0.25115 | 0.2115* | | | | | | | |

$$0.2115^* = 0.1000 + 0.1115$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|--------------|------------------|
| | -0.0011 | -0.000036 | 0.00046 | -0.0011 | -0.000086 | 0.265 | -0.16% |
| h 或 $\omega\%$ | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | $K'_{\pm 1}$ | $K'_{\mp 0.7}$ |
| 100 | -0.00062 | -0.00043 | -0.0020 | -0.0034 | 0.0014 | 0.0010 | 0.00068 |
| 70 | -0.0028 | -0.00010 | 0.00022 | -0.0022 | 0.0024 | -0.00053 | -0.000016 |



编号: 02-00-032

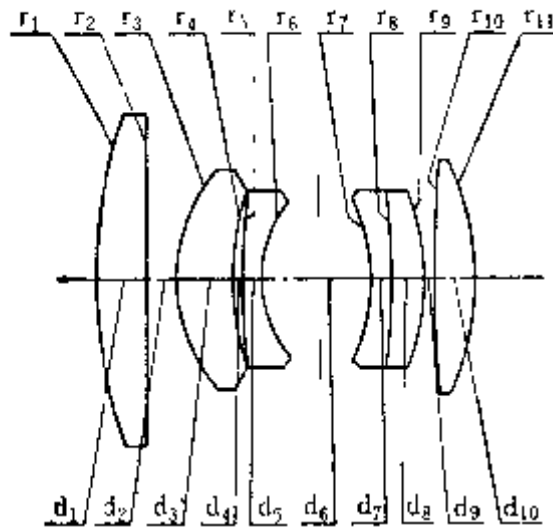
大 孔 径 物 镜

E. F. L = 1

B. F. L = 0.6196

FN₀ = 1.4

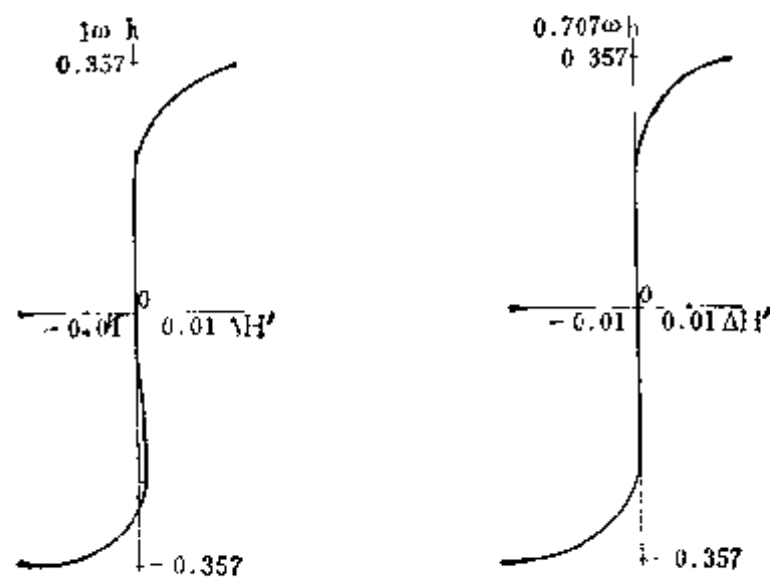
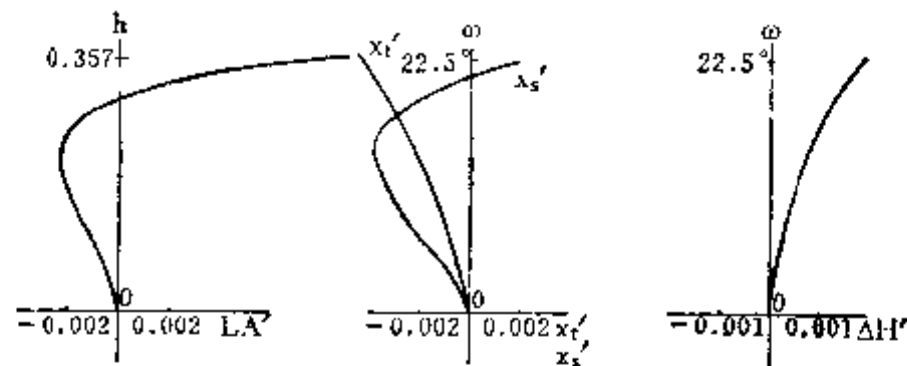
F. A. = ± 22.5°



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|---------|----------------|------|----|----------|--------|----------------|------|
| 1 | 0.96134 | 0.1017 | 1.72056 | 47.7 | 7 | -0.34620 | 0.0321 | 1.76846 | 26.8 |
| 2 | 10.69560 | 0.0569 | | | 8 | -0.67310 | 0.0769 | 1.78990 | 48.0 |
| 3 | 0.41770 | 0.1119 | 1.78990 | 48.0 | 9 | -0.44880 | 0.0100 | | |
| 4 | 0.84270 | 0.0200 | | | 10 | 2.91060 | 0.0846 | 1.78990 | 48.0 |
| 5 | 1.30770 | 0.0467 | 1.76846 | 26.8 | 11 | -0.81900 | 0.6188 | | |
| 6 | 0.30370 | 0.2115* | | | | | | | |

0.2115* = 0.1000 + 0.1115

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|--------|--------------|--------------|--------------|--------------|---------------|-----------|------------|
| | -0.0032 | -0.00023 | 0.00086 | -0.0043 | 0.0021 | 0.41 | 0.14% |
| h 或 ω% | LA' | AH' | x_t' | x_s' | $x_t' - x_s'$ | K_{t1}' | $K_{r0.7}$ |
| 100 | 0.0092 | 0.0018 | -0.0056 | 0.0018 | -0.0074 | -0.00058 | 0.0016 |
| 70 | -0.0022 | 0.00087 | -0.0027 | -0.0039 | 0.0012 | -0.0034 | 0.00049 |



编号: 02-00-033

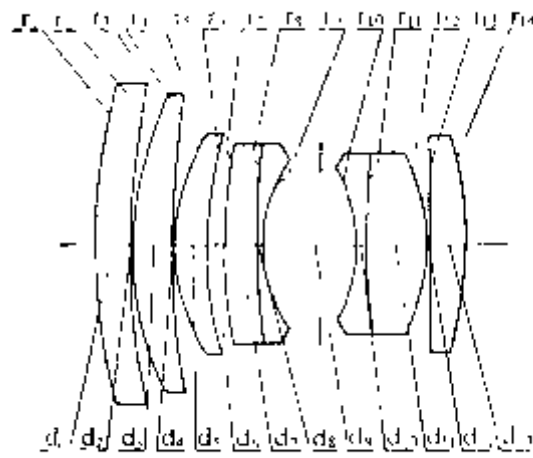
扩展的高斯型大孔径物镜

E. F. L = 1

B. F. L = 0.7114

FN₀ = 2.3

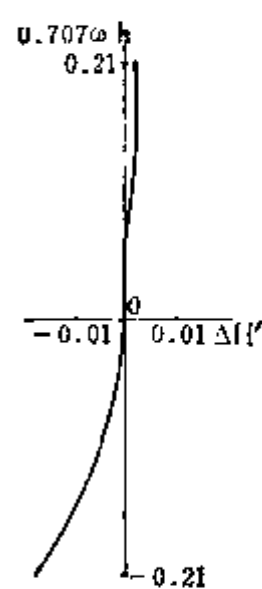
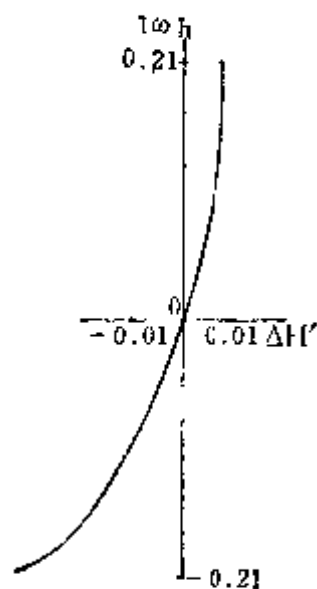
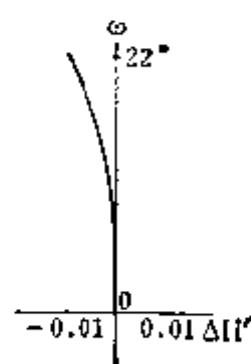
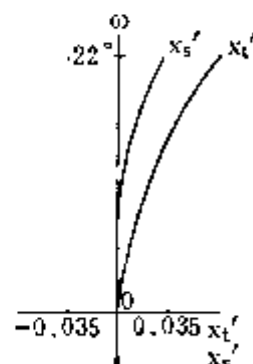
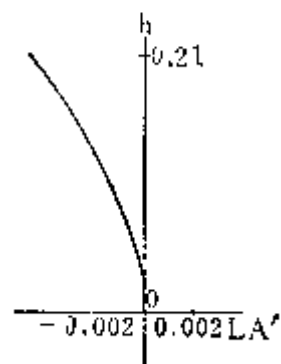
F A. = ± 22° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|-------|--------|----------------|---|----|--------|---------|----------------|---|
| 1 | 1.300 | 0.0700 | 1.515 | | 8 | 3.000 | 0.0150 | 1.805 | |
| 2 | 1.700 | 0.0010 | | | 9 | 0.300 | 0.1900* | | |
| 3 | 0.700 | 0.0800 | 1.700 | | 10 | -0.280 | 0.0200 | 1.630 | |
| 4 | 3.000 | 0.0010 | | | 11 | 1.700 | 0.1200 | 1.700 | |
| 5 | 0.100 | 0.0700 | 1.630 | | 12 | -0.400 | 0.0015 | | |
| 6 | 0.750 | 0.0350 | | | 13 | 3.950 | 0.0730 | 1.744 | |
| 7 | 1.300 | 0.0630 | 1.770 | | 14 | -0.735 | | | |

0.1900* = 0.1000 + 0.0900

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HI | QP (1 ω) |
|---------|-----------------|-----------------|-----------------|-----------------|-------------------------------------|-----------------|-------------------|
| | -0.00051 | -0.0013 | -0.0024 | -0.0010 | 0.0032 | 0.399 | -2.55% |
| h 或 ω % | LA' | ΔH' | x _t | x _s | x _t ' - x _s ' | K _{T1} | K _{T0.7} |
| 100 | 0.0044 | -0.010 | 0.071 | 0.030 | 0.041 | -0.011 | -0.0019 |
| 70 | -0.0025 | -0.0029 | 0.035 | 0.010 | 0.024 | -0.0080 | -0.0036 |



编号: 02-00-034

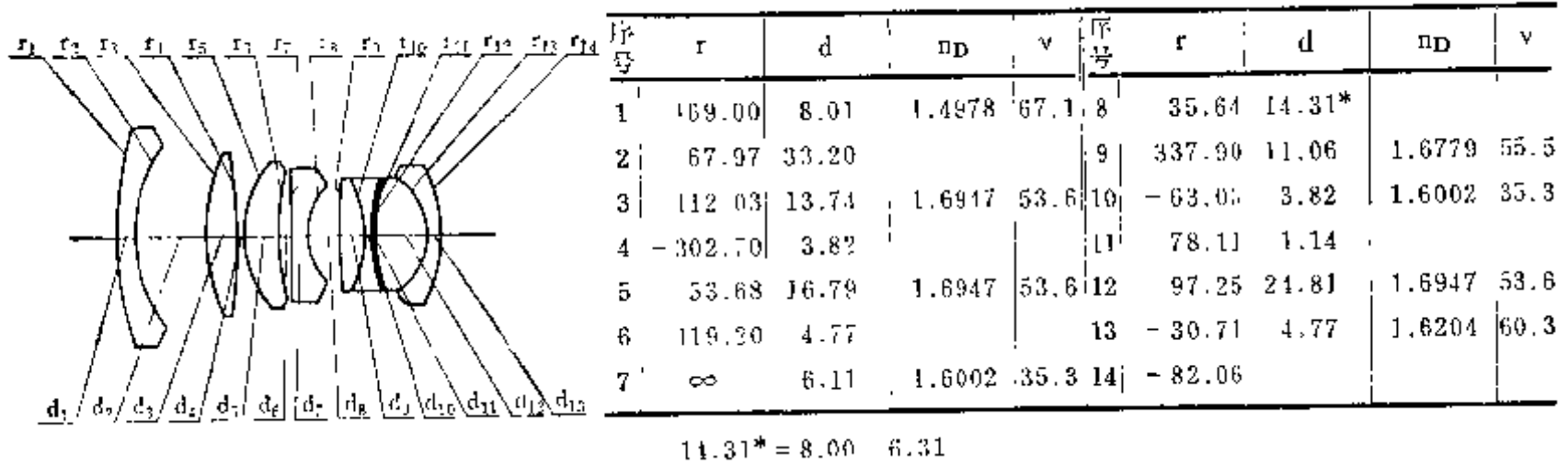
大 孔 径 物 镜

E. F. L = 100

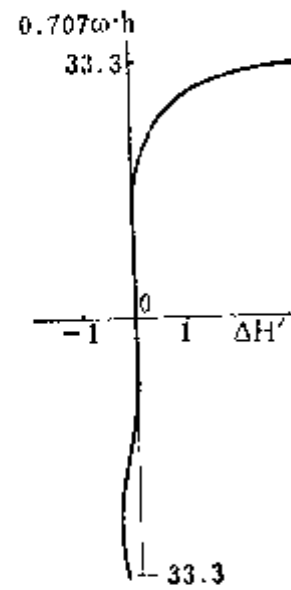
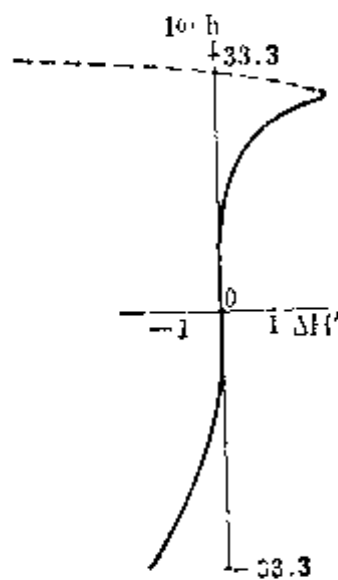
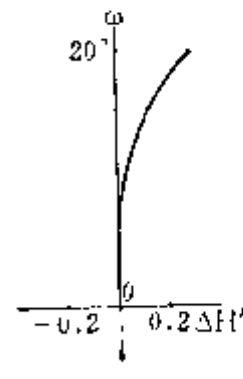
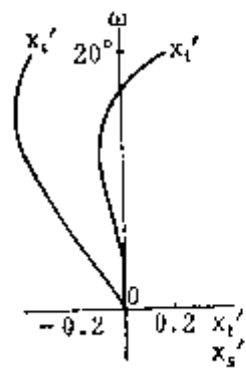
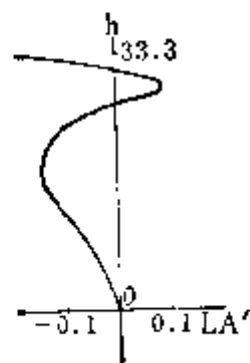
B. F. L = 68.16

FN₀ = 1.5

F. A. = ±20° **



| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (%) |
|--------|--------------|--------------|--------------|--------------|---------------------|-----------|-------------|
| | -0.20 | -0.14 | 0.081 | -0.31 | 0.11 | 36.94 | 0.76% |
| h 或 ω% | LA' | ΔH' | χ'_t | χ'_s | $\chi'_t - \chi'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.19 | 0.28 | 0.17 | -0.36 | 0.53 | | -0.036 |
| 70 | -0.12 | 0.977 | -0.099 | -0.41 | 0.31 | 1.48 | -0.031 |



编号: 02-00-036

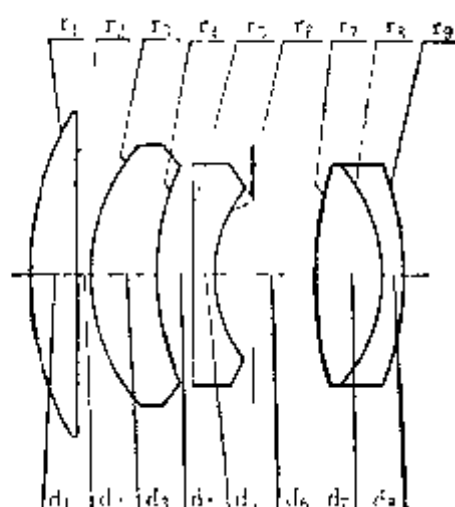
摄影物镜

E. F. L = 100

B. F. L = 46.82

FN₀ = 1.5

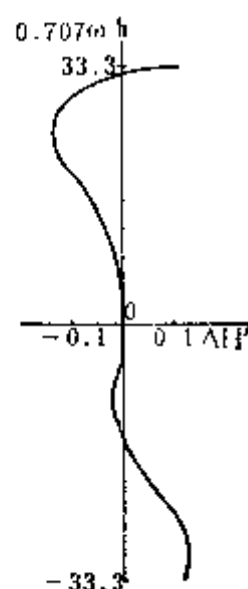
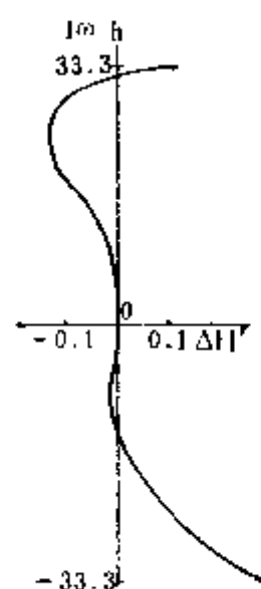
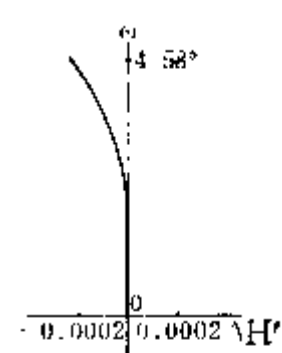
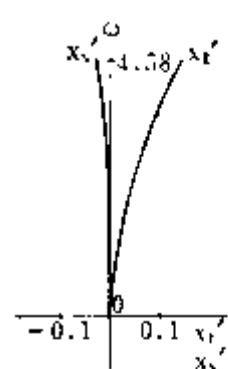
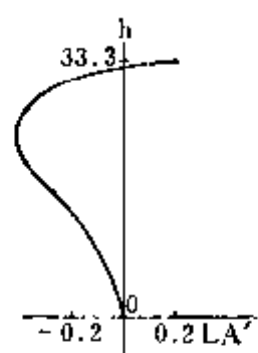
F. A. = ± 4.58° **



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|---------|-------|----------------|----------------|----|--------|--------|----------------|----------------|
| 1 | 67.77 | 12.25 | 1.6031 | 60.7 | 6 | 29.77 | 20.90* | | |
| 2 | -753.45 | 0.66 | | | 7 | 89.09 | 15.20 | 1.6584 | 50.8 |
| 3 | 41.20 | 14.40 | 1.6204 | 60.3 | 8 | -34.00 | 3.94 | 1.5814 | 40.8 |
| 4 | 55.09 | 7.79 | | | 9 | -70.63 | | | |
| 5 | -707.41 | 4.85 | 1.7400 | 28.2 | | | | | |

20.90* = 8.00 + 12.90

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | III | QP (1%) |
|--------|-----------------|-----------------|-----------------|------------------|-------------------------------------|-------------------|---------------------|
| | -0.33 | -0.040 | 0.021 | -0.028 | -0.00009 | 8 | -0.003% |
| h 或 ω% | LA' | ΔH' | x _t | λ _s ' | x _t ' - λ _s ' | K _{T1} ' | K _{T2,7} ' |
| 100 | 0.22 | -0.00024 | 0.140 | -0.031 | 0.171 | 0.20 | -0.024 |
| 70 | -0.43 | -0.00005 | 0.076 | -0.016 | 0.092 | 0.12 | -0.023 |



编号: 02-00-037

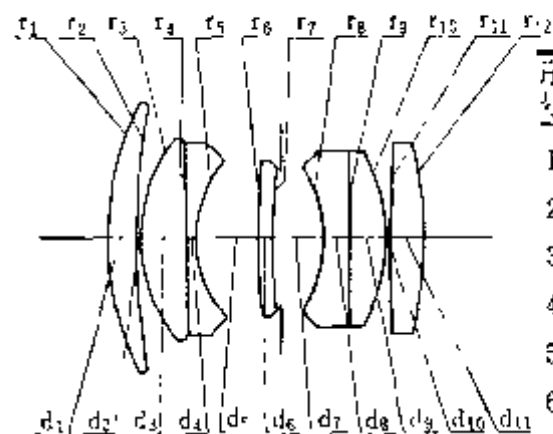
摄影物镜

E. F. L = 1

B. F. L = 0.692

FNo. = 2

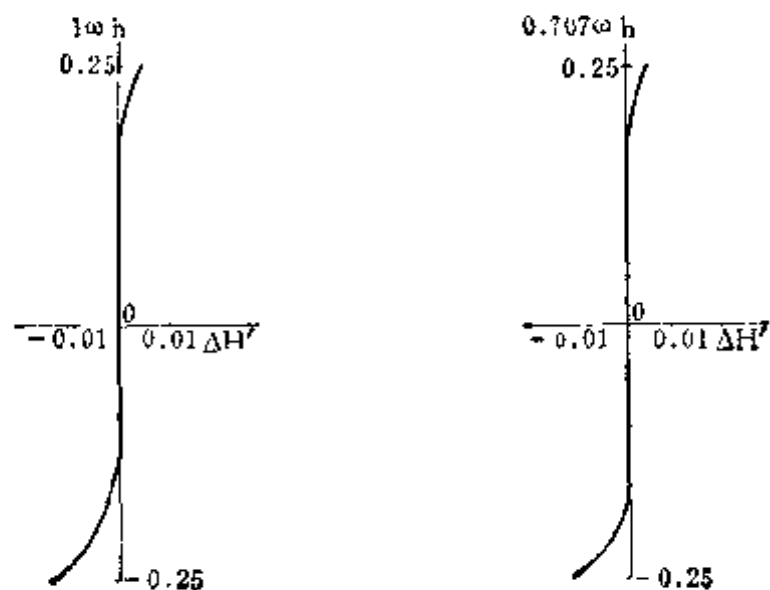
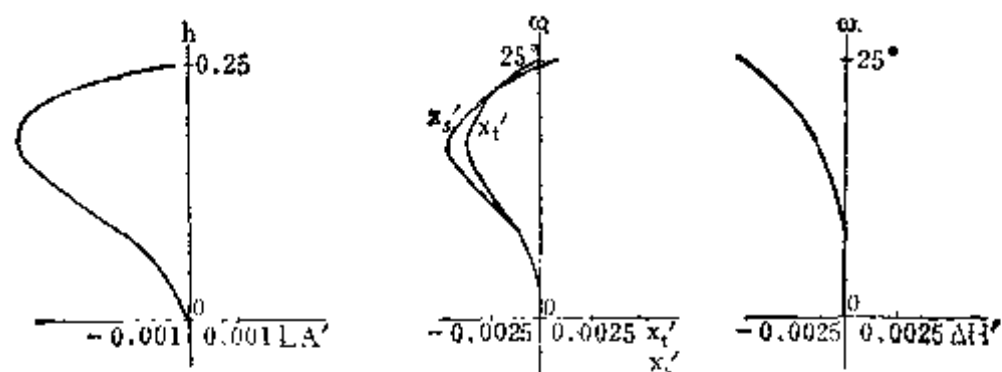
F. A. = $\pm 25^\circ$



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|---------|----------------|-------|----|----------|----------|----------------|-------|
| 1 | 0.65181 | 0.06695 | 1.74400 | 44.90 | 7 | 1.17285 | 0.10633* | | |
| 2 | 1.75485 | 0.00984 | | | 8 | -0.30760 | 0.05907 | 1.72825 | 28.34 |
| 3 | 0.35799 | 0.09943 | 1.62041 | 60.29 | 9 | -5.96331 | 0.07876 | 1.74400 | 44.90 |
| 4 | 7.61609 | 0.01477 | 1.58144 | 40.80 | 10 | -0.40725 | 0.00984 | | |
| 5 | 0.25514 | 0.13783 | | | 11 | 3.70875 | 0.07876 | 1.74400 | 44.90 |
| 6 | 1.78027 | 0.02954 | 1.62004 | 36.34 | 12 | -0.89225 | | | |

0.10633* = 0.00100 + 0.10533

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.0014 | 0.000056 | 0.00016 | -0.0022 | -0.0014 | 0.46 | -1.23% |
| h 或 ω % | L.A' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.00034 | -0.0057 | -0.00026 | 0.00050 | -0.00076 | -0.0057 | -0.0017 |
| 70 | -0.0034 | | | | | | |



编号: 02-00-039

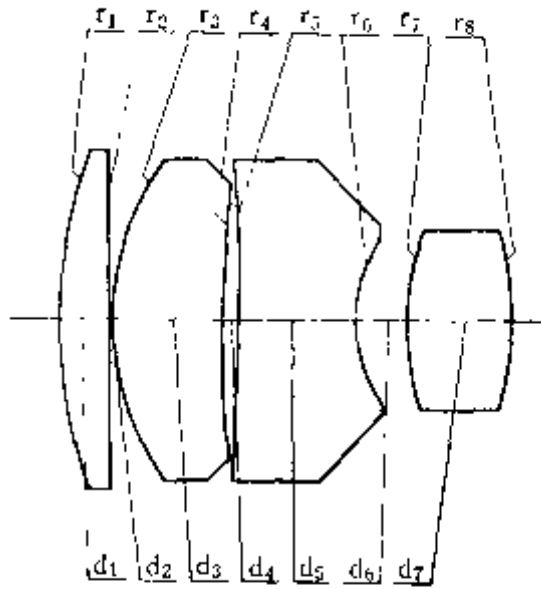
四 片 式 物 镜

E. F. L = 100

B. F. L = 38.84

FNo. = 1.4

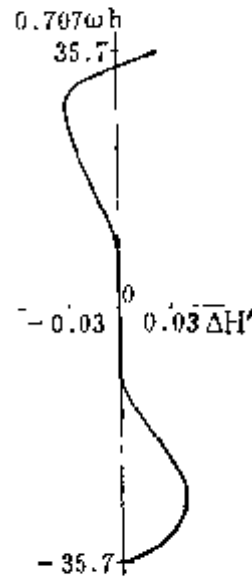
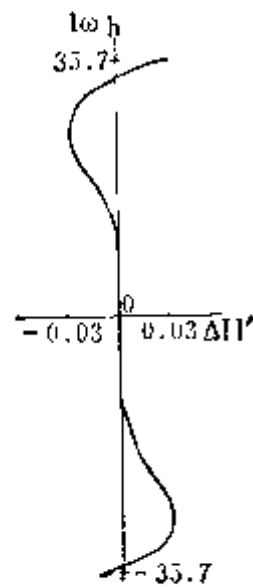
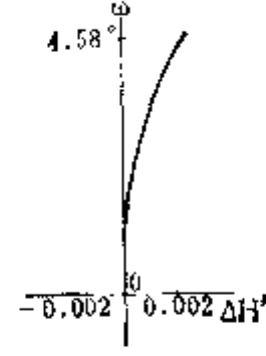
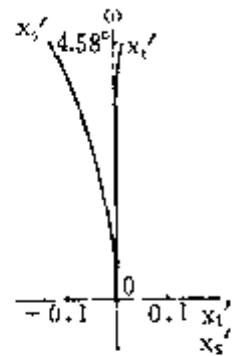
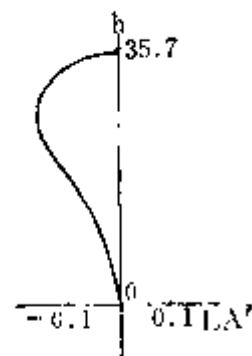
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | n_d | v | 序号 | r | d | n_d | v |
|----|---------|-------|---------|------|----|---------|--------|---------|------|
| 1 | 132.94 | 11.76 | 1.62061 | 60.3 | 5 | -531.10 | 28.12 | 1.72825 | 28.3 |
| 2 | 3619.00 | 0.77 | | | 6 | 36.23 | 12.27* | | |
| 3 | 66.63 | 27.61 | 1.65160 | 58.5 | 7 | 64.94 | 25.57 | 1.71300 | 53.9 |
| 4 | 327.30 | 3.12 | | | 8 | -85.80 | | | |

12.27* = 6.00 + 6.27

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HU | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------|------------|--------------|
| | -0.12 | -0.00013 | 0.017 | -0.051 | 0.0020 | 8 | 0.027% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K_{T1}^* | $K_{T0.7}^*$ |
| 100 | -0.0092 | 0.0022 | 0.0084 | 0.131 | 0.139 | 0.0097 | -0.00055 |
| 70 | -0.16 | 0.00090 | 0.0032 | -0.066 | 0.069 | 0.0089 | 0.0012 |



编号: 02-00-040

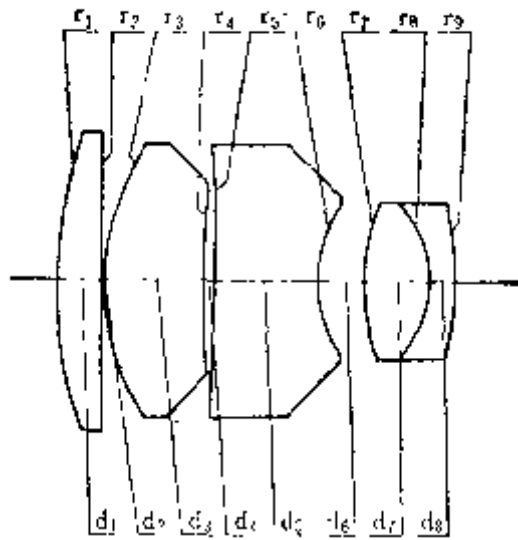
四 组 元 物 镜

E. F. L = 100

B. F. L = 38.35

FN₀ = 1.2

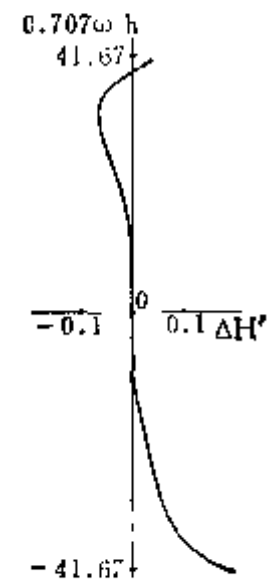
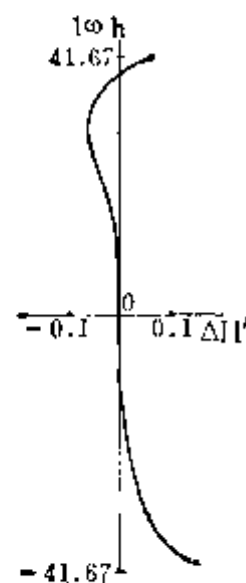
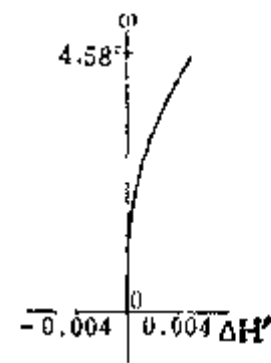
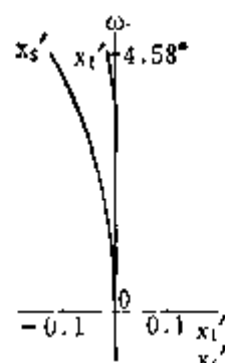
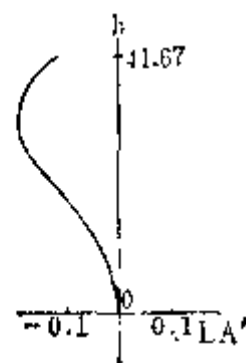
F. A. = ± 4.58° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|-------|----------------|------|----|---------|--------|----------------|------|
| 1 | 128.13 | 11.33 | 1.62061 | 60.3 | 6 | 34.74 | 11.83* | | |
| 2 | 3488.00 | 0.74 | | | 7 | 64.36 | 17.25 | 1.71300 | 53.9 |
| 3 | 64.51 | 26.61 | 1.65830 | 57.5 | 8 | -31.15 | 7.39 | 1.65830 | 57.5 |
| 4 | 307.60 | 3.01 | | | 9 | -103.49 | | | |
| 5 | -534.30 | 27.11 | 1.72832 | 28.3 | | | | | |

11.83* = 6.00 + 5.83

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1ω) |
|--------|--------------|--------------|-----------------|-----------------|--------------|-----------------|-------------------|
| | -0.23 | -0.0045 | 0.019 | -0.063 | 0.0016 | 8 | 0.062% |
| h 或 ω% | LA' | ΔH' | x' _t | x' _s | x'_t - x'_s | K _{T1} | K _{T0.7} |
| 100 | -0.12 | 0.0049 | -0.011 | -0.120 | 0.109 | 0.18 | -0.0077 |
| 70 | -0.20 | 0.0018 | -0.0068 | -0.063 | 0.056 | 0.11 | -0.0034 |



编号: 02-00-042

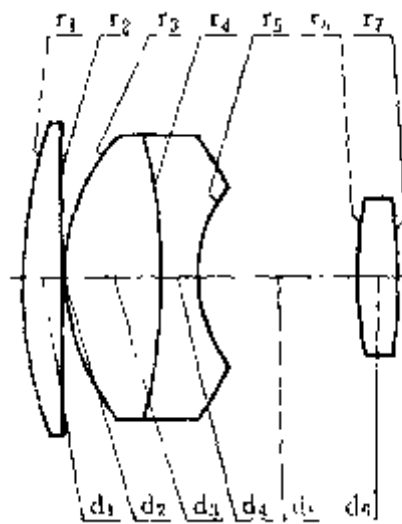
用于摄影、电影摄影和放映的大孔径物镜

E. F. L = 1

B. F. L = 0.368

FN₀ = 1.4

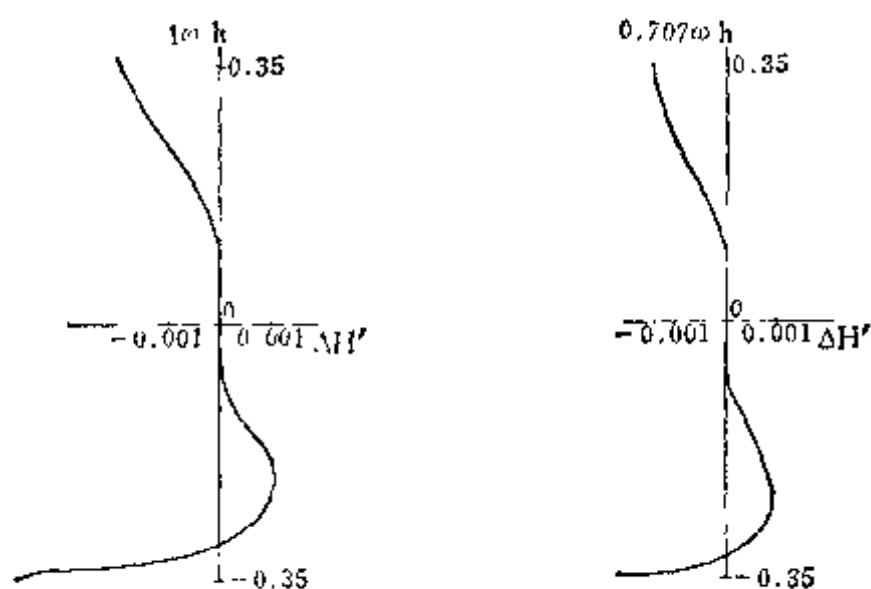
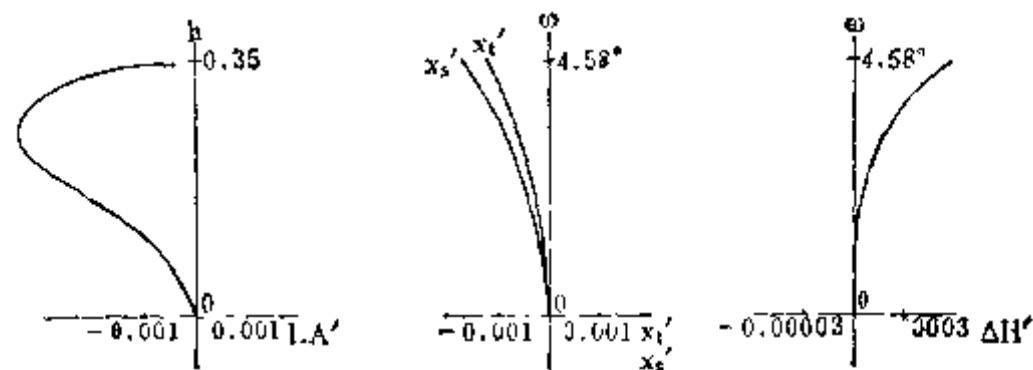
F. A. = ± 4.58° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|---------|----------------|-------|----|----------|----------|----------------|-------|
| 1 | 1.04000 | 0.10000 | 1.74400 | 44.90 | 5 | 0.36840 | 0.38000* | | |
| 2 | 11.02800 | 0.00200 | | | 6 | 0.89876 | 0.10000 | 1.74400 | 44.90 |
| 3 | 0.52034 | 0.24000 | 1.63854 | 55.43 | 7 | -1.70742 | | | |
| 4 | -1.34239 | 0.08000 | 1.76182 | 26.52 | | | | | |

$$0.38000^* = 0.19000 + 0.19000$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.0027 | 0.00027 | 0.000054 | -0.00050 | 0.000044 | 0.08 | 0.069% |
| h 或 ω % | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{11} | $K'_{10.7}$ |
| 100 | -0.00042 | 0.000055 | -0.0012 | -0.0017 | 0.00051 | -0.0028 | -0.00013 |
| 70 | -0.0035 | 0.000020 | -0.00064 | -0.00088 | 0.00024 | -0.0018 | -0.000060 |



编号: 02-00-043

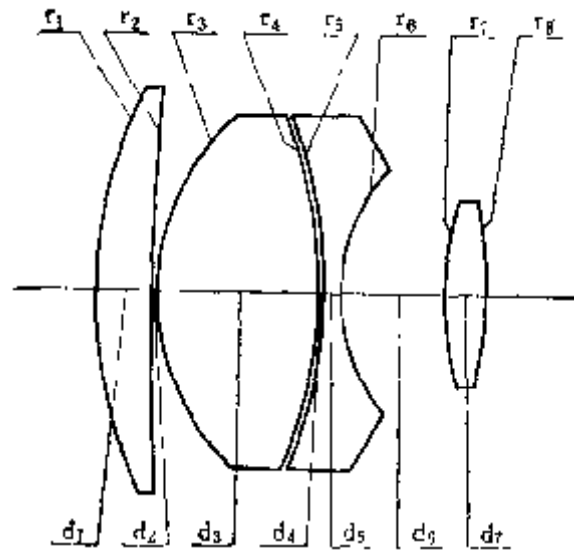
用于摄影、电影摄影和放映的大孔径物镜

E. F. L = 1

B. F. L = 0.424

FNo. = 1.3

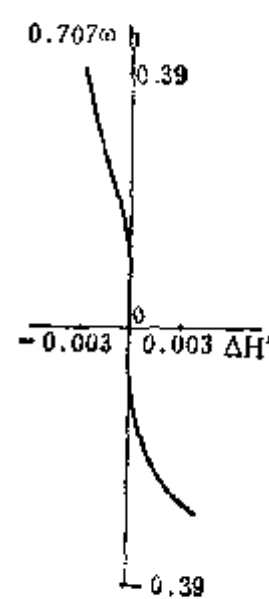
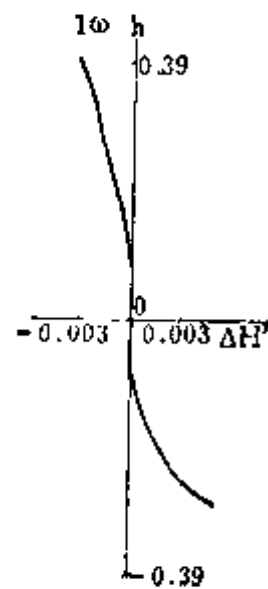
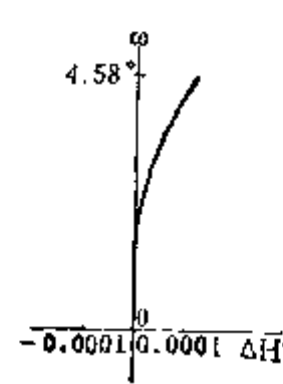
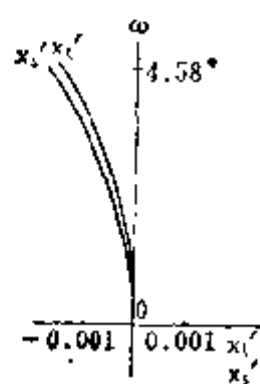
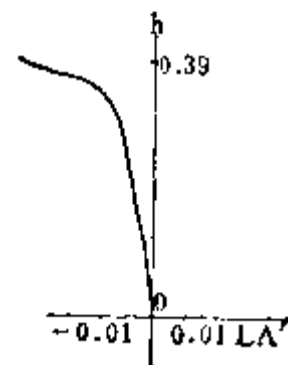
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|---------|----------------|-------|----|----------|----------|----------------|-------|
| 1 | 1.03060 | 0.12000 | 1.78443 | 43.77 | 5 | -1.10030 | 0.05000 | 1.78470 | 26.10 |
| 2 | 4.68920 | 0.00300 | | | 6 | 0.38335 | 0.22500* | | |
| 3 | 0.51855 | 0.35000 | 1.53996 | 59.66 | 7 | 0.90790 | 0.08000 | 1.78443 | 43.77 |
| 4 | -1.10030 | 0.00300 | | | 8 | -1.35005 | | | |

0.22500* = 0.10000 + 0.12500

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.0052 | 0.00043 | 0.000027 | -0.00057 | 0.00010 | 0.08 | 0.15% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.026 | 0.00012 | -0.0015 | -0.0017 | 0.00018 | | 0.0017 |
| 70 | -0.0066 | 0.000045 | -0.00079 | -0.00088 | 0.000094 | | 0.00090 |



编号: 02-00-045

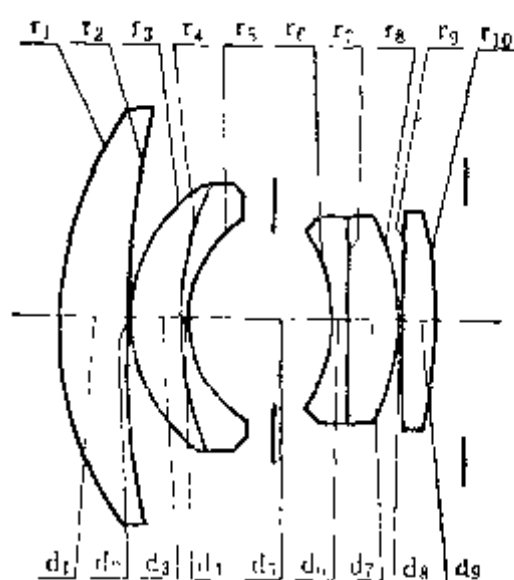
大 孔 径 摄 影 物 镜

E. F. L = 1

B. F. L = 0.63664

FNo. = 1.9

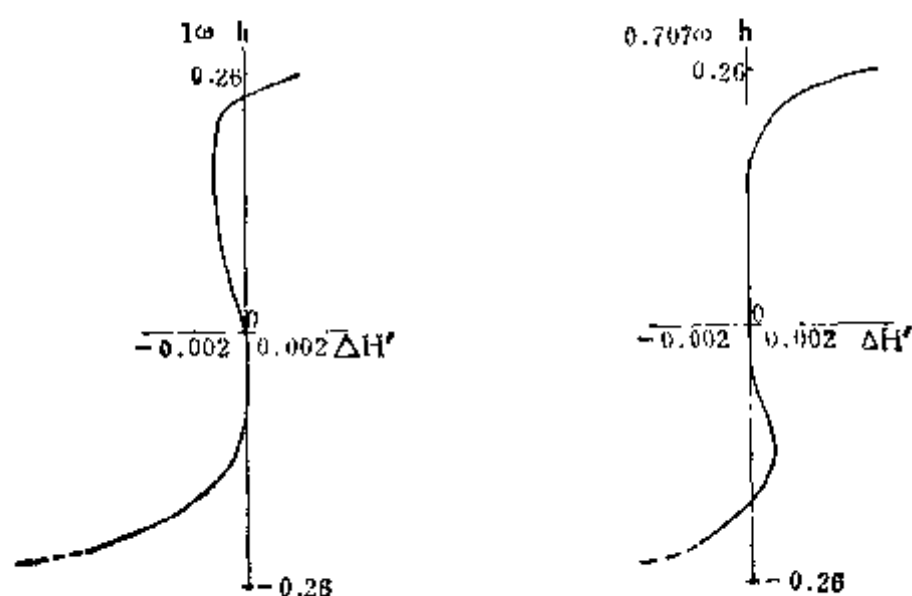
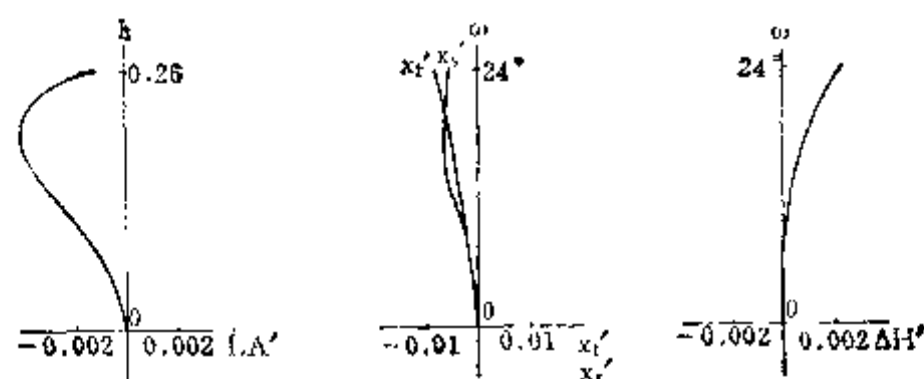
F. A. = $\pm 24^\circ$



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|---------|----------|----------------|----------------|----|----------|---------|----------------|----------------|
| 1 | 0.73853 | 0.12463 | 1.72000 | 50.31 | 6 | -0.31542 | 0.03665 | 1.69895 | 30.05 |
| 2 | 2.26782 | 0.00103 | | | 7 | -5.25016 | 0.09698 | 1.60100 | 51.80 |
| 3 | 0.31416 | 0.09801 | 1.65830 | 57.29 | 8 | -0.39150 | 0.00034 | | |
| 4 | 0.62268 | 0.01642 | 1.65446 | 33.79 | 9 | 5.42416 | 0.05961 | 1.74900 | 35.00 |
| 5 | 0.23665 | 0.27818* | | | 10 | -0.92029 | | | |

0.27818* = 0.18000 + 0.09818

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.0017 | 0.00077 | 0.000099 | -0.0028 | 0.0014 | 0.45 | 0.49% |
| h 或 ω % | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.0012 | 0.0021 | 0.0089 | -0.0075 | -0.0014 | -0.0080 | -0.0018 |
| 70 | -0.0010 | 0.00082 | -0.0064 | -0.0074 | 0.0010 | -0.0019 | -0.00007 |



编号: 02-00-046

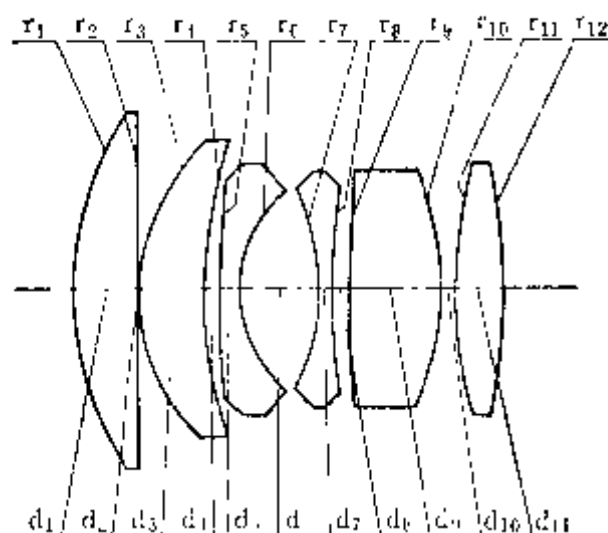
六 片 式 物 镜

E. F. L = 100

B. F. L = 56.6

FNo. = 1.6

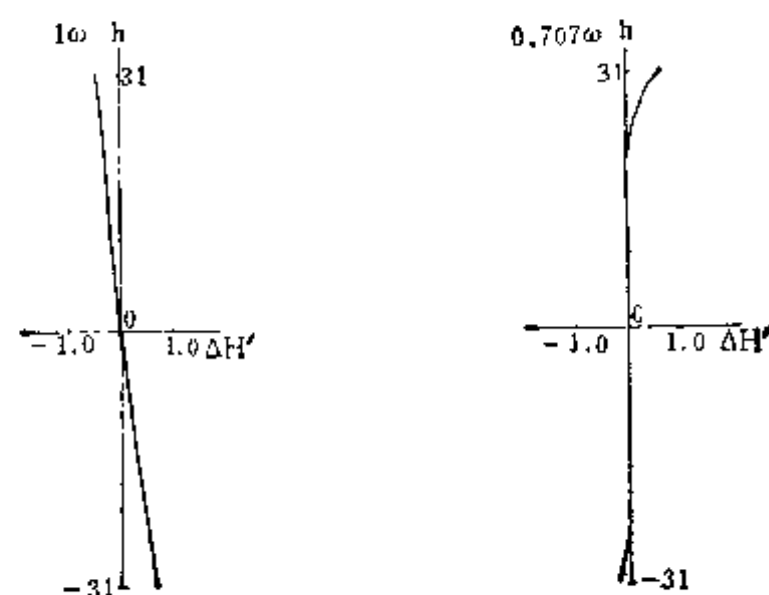
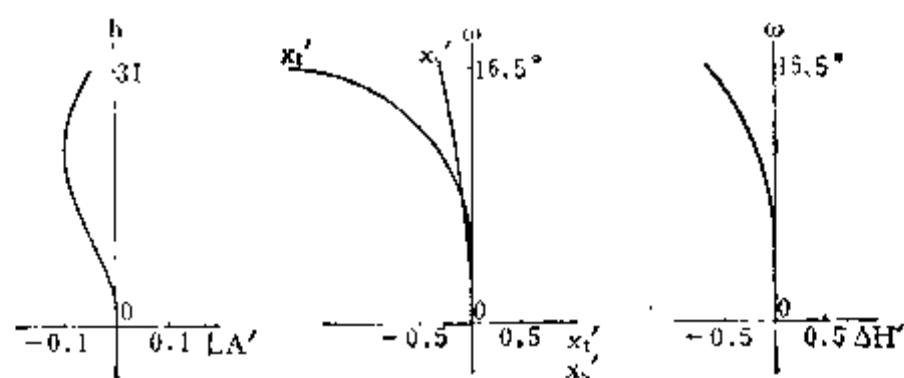
F. A. = $\pm 16.5^{\circ}$ **



| 序号 | r | d | n_D | v_D | 序号 | r | d | n_D | v_D |
|----|----------|--------|--------|-------|----|----------|-------|--------|-------|
| 1 | 60.741 | 12.76 | 1.6203 | 60.2 | 7 | -44.536 | 2.68 | 1.7270 | 28.5 |
| 2 | 4929.980 | 0.13 | | | 8 | 174.265 | 3.57 | | |
| 3 | 39.890 | 12.50 | 1.6034 | 60.4 | 9 | 306.105 | 17.73 | 1.6242 | 46.9 |
| 4 | 96.753 | 2.42 | | | 10 | -57.444 | 2.55 | | |
| 5 | 200.554 | 3.57 | 1.6057 | 38.0 | 11 | 88.363 | 9.57 | 1.6203 | 60.2 |
| 6 | 24.899 | 15.05* | | | 12 | -112.535 | | | |

15.05* = 8.50 + 6.55

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.080 | -0.045 | 0.062 | -0.17 | -0.27 | 28.76 | -2.37% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.018 | -0.68 | -1.76 | -0.26 | -1.50 | 0.052 | -0.040 |
| 70 | -0.10 | -0.19 | -0.33 | -0.21 | -0.12 | 0.16 | -0.024 |



编号: 02-00-047

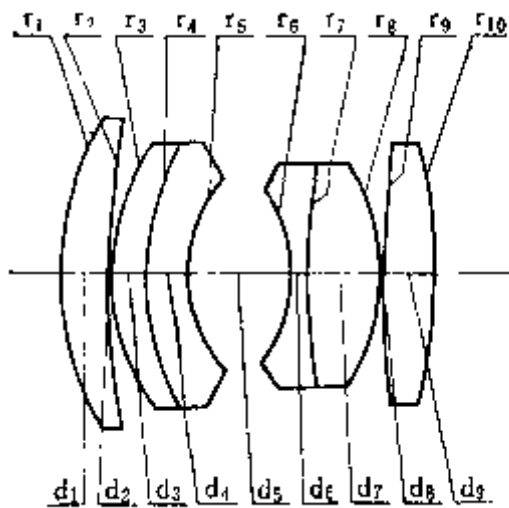
摄影物镜

E.F.L=101

B.F.L=73.7

FNo.=2

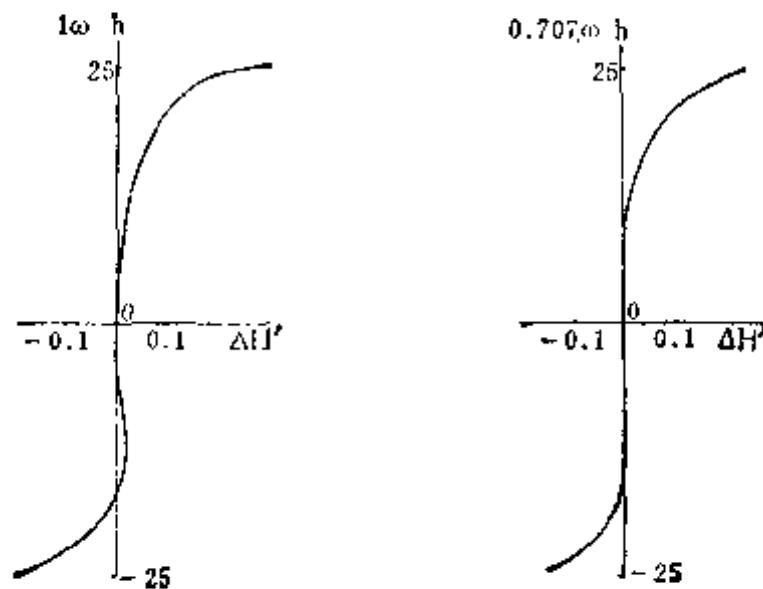
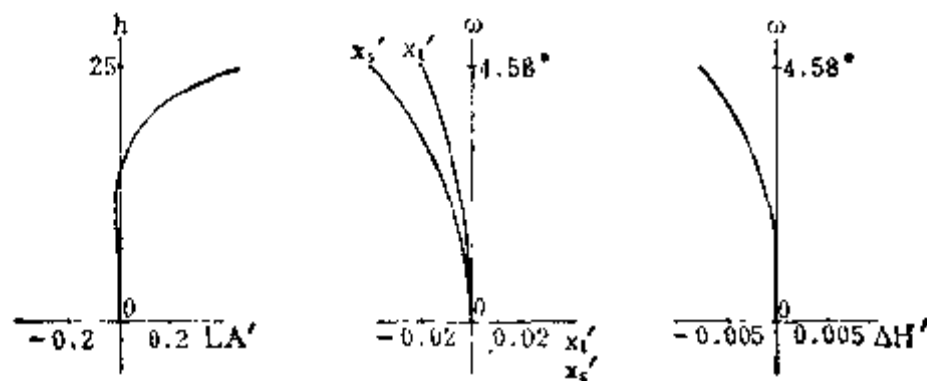
F.A. = $\pm 4.58''$ **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|-------|-------|----------------|------|----|-------|------|----------------|------|
| 1 | 57.9 | 9.2 | 1.66200 | 56.1 | 6 | -30.1 | 3.8 | 1.60156 | 35.2 |
| 2 | 174.9 | 0.2 | | | 7 | 137.0 | 14.1 | 1.66200 | 56.1 |
| 3 | 43.5 | 6.7 | 1.66200 | 56.1 | 8 | -42.8 | 0.6 | | |
| 4 | 53.5 | 8.4 | 1.67246 | 32.3 | 9 | 227.3 | 9.5 | 1.66200 | 56.1 |
| 5 | 26.7 | 19.9* | | | 10 | -96.0 | | | |

19.9* = 10.0 + 9.9

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.026 | 0.0063 | 0.0013 | -0.0066 | -0.0035 | 8 | -0.089% |
| h 或 ω % | LA' | $\Delta H'$ | x_t' | x_s' | $x_t' - x_s'$ | K_{T1}' | $K_{Tc.7}'$ |
| 100 | 0.46 | -0.0072 | -0.021 | -0.042 | 0.021 | 0.047 | 0.021 |
| 70 | 0.055 | -0.0025 | -0.010 | -0.021 | 0.011 | 0.036 | 0.015 |



编号: 02-00-018

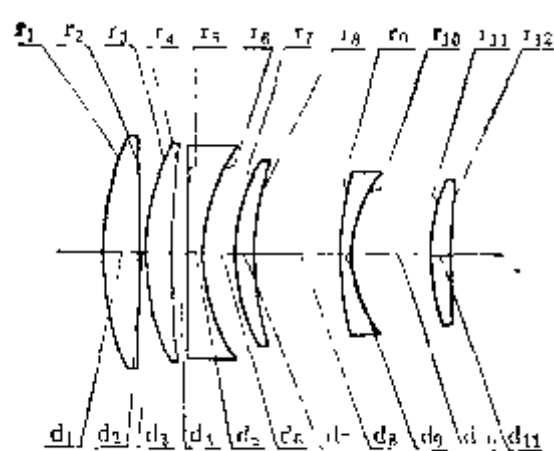
远 摄 物 镜

E. F. L = 122

B. F. L = 47.5

FNo. = 1.9

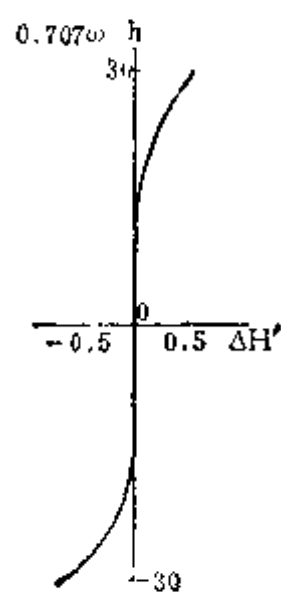
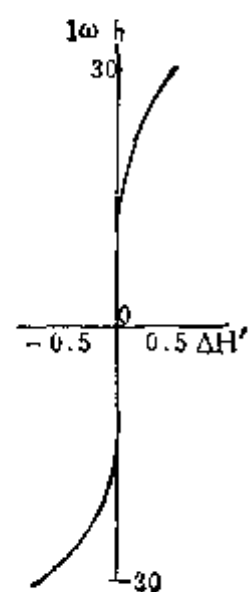
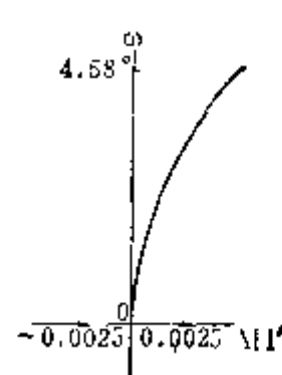
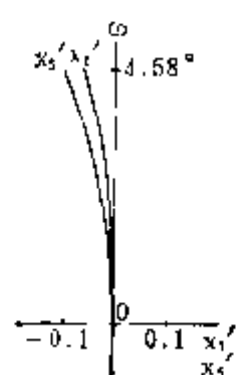
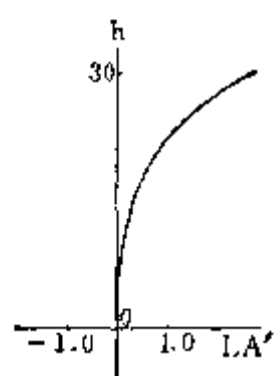
F. A. = $\pm 4.58^{\circ}$ **



| 序号 | r | d | nD | v | 序号 | r | d | nD | v |
|----|----------|------|---------|------|----|--------|--------|---------|------|
| 1 | 61.96 | 8.00 | 1.54771 | 62.9 | 7 | 39.36 | 4.00 | 1.60738 | 56.7 |
| 2 | -940.70 | 0.27 | | | 8 | 60.02 | 18.67* | | |
| 3 | 49.30 | 6.67 | 1.60729 | 59.5 | 9 | 67.40 | 2.67 | 1.74080 | 28.0 |
| 4 | 200.10 | 3.07 | | | 10 | 27.21 | 17.34 | | |
| 5 | ∞ | 3.33 | 1.64769 | 33.9 | 11 | 43.00 | 4.00 | 1.64769 | 33.9 |
| 6 | 40.50 | 6.67 | | | 12 | 202.50 | | | |

18.67* - 9.00 + 9.67

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | 0.11 | 0.0035 | 0.0023 | -0.014 | 0.0031 | 8.6 | 0.062% |
| h 或 ω % | LA' | AI' | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 2.68 | 0.0054 | -0.062 | -0.098 | 0.036 | -0.13 | -0.015 |
| 70 | 0.84 | 0.0022 | -0.031 | -0.050 | 0.019 | -0.099 | -0.014 |



编号: 02-00-049

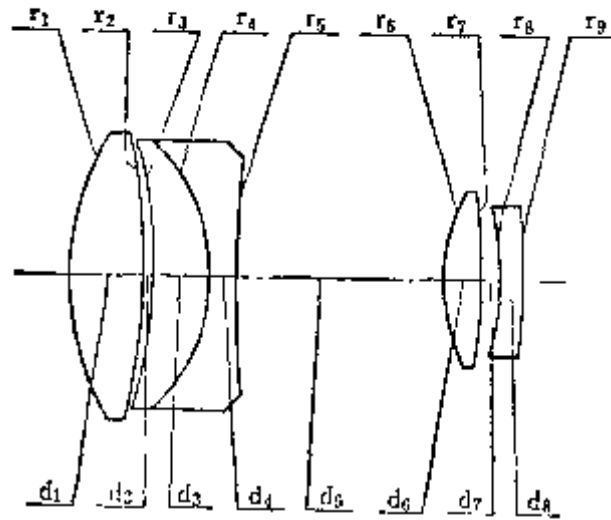
消色差、球差、象散和彗差的大孔径达尔美尔型摄影物镜

E. F. L = 100

B. F. L = 36.5

FNo. = 1.4

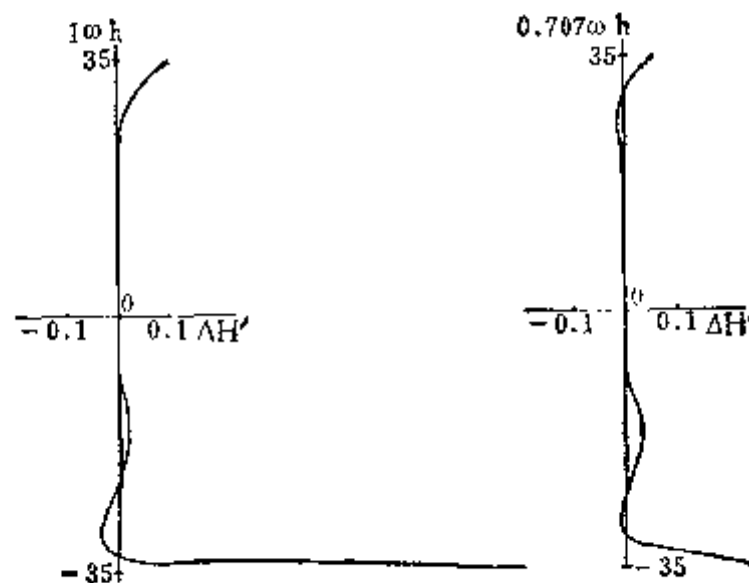
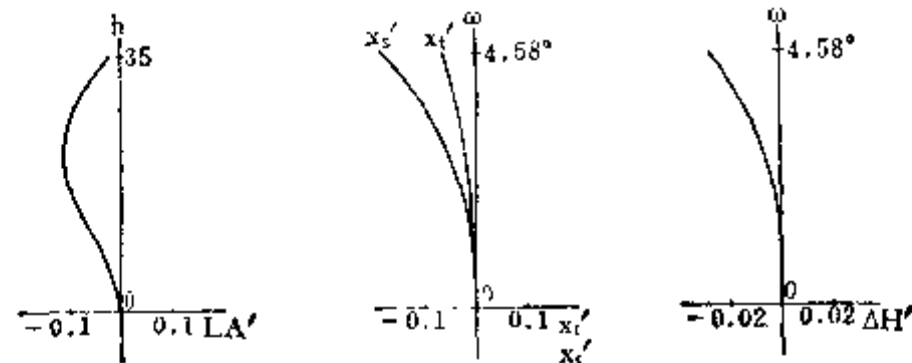
F. A. = $\pm 4.58^\circ$ **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|--------|----------------|------|----|---------|------|----------------|------|
| 1 | 73.69 | 19.28 | 1.6073 | 59.5 | 6 | 56.58 | 9.64 | 1.6516 | 58.5 |
| 2 | -170.64 | 3.30 | | | 7 | 131.21 | 5.09 | | |
| 3 | -120.30 | 13.77 | 1.7408 | 28.0 | 8 | -71.62 | 5.51 | 1.7408 | 28.0 |
| 4 | -46.75 | 6.88 | 1.7174 | 29.5 | 9 | -305.78 | | | |
| 5 | 373.00 | 55.10* | | | | | | | |

55.10* = 25.00 + 30.10

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | II | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.14 | 0.018 | 0.015 | -0.063 | -0.019 | 8 | -0.36% |
| h 或 ω % | LA' | $\Delta H'$ | x_t' | x_s' | $x_t' - x_s'$ | K_{T1}' | $K_{T0.7}'$ |
| 100 | -0.016 | -0.029 | -0.062 | -0.192 | 0.130 | 0.47 | -0.0097 |
| 70 | -0.12 | -0.010 | -0.034 | -0.098 | 0.064 | 0.15 | -0.0044 |



编号: 02-00-050

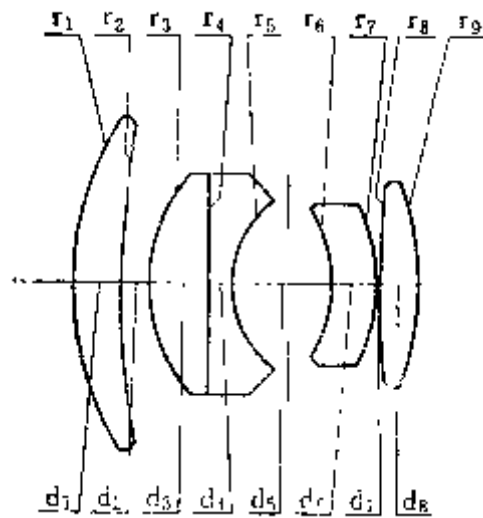
摄影及放映用的大孔径物镜

E. F. L = 1

B. F. L = 0.579

FNo. = 2.5

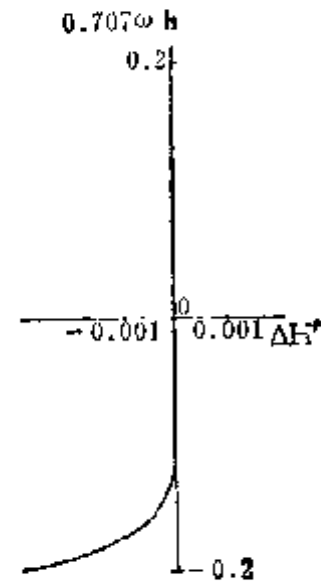
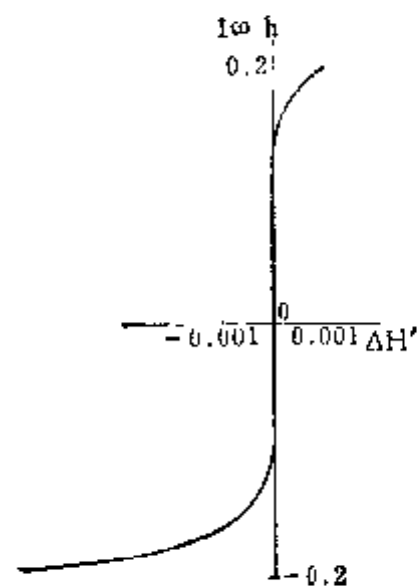
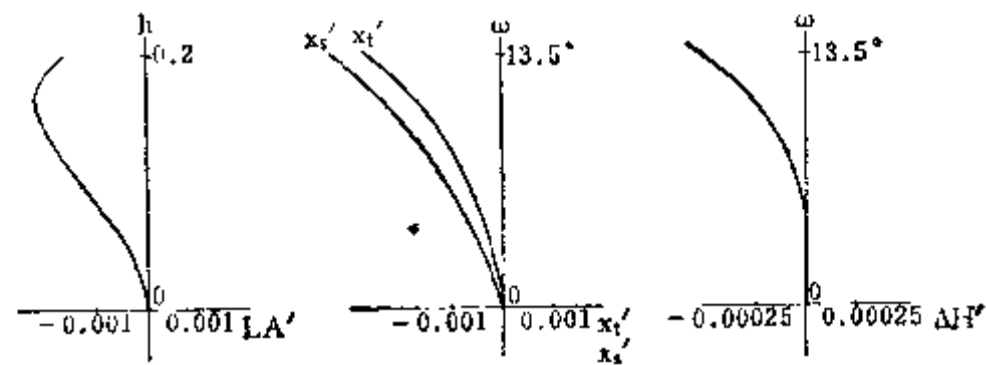
F. A. = $\pm 13.5^\circ$



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|----------|---------|----------------|----------------|----|---------|--------|----------------|----------------|
| 1 | 0.6010 | 0.0931 | 1.658 | 50.8 | 6 | -0.2739 | 0.0783 | 1.755 | 27.5 |
| 2 | 1.6430 | 0.0521 | | | 7 | -0.4078 | 0.0091 | | |
| 3 | 0.3211 | 0.1118 | 1.658 | 50.8 | 8 | 2.2670 | 0.0699 | 1.639 | 55.5 |
| 4 | ∞ | 0.0480 | 1.673 | 32.2 | 9 | -0.5240 | | | |
| 5 | 0.2190 | 0.1934* | | | | | | | |

$$0.1934^* = 0.1000 + 0.0934$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.00047 | 0.000010 | 0.000091 | -0.00044 | -0.000055 | 0.23 | -0.24% |
| h 或 ω % | LA' | $\Delta H'$ | x_t' | x_s' | $x_t' - x_s'$ | K_{F1}' | $K_{F0.7}'$ |
| 100 | -0.0017 | -0.00056 | -0.0027 | -0.0033 | 0.00059 | -0.0020 | -0.00013 |
| 70 | -0.0020 | -0.00012 | -0.0012 | -0.0019 | 0.00077 | -0.0015 | -0.00018 |



编号: 02-00-051

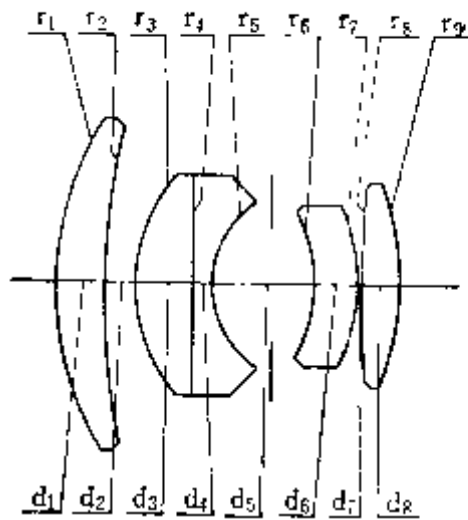
摄影及放映用的大孔径物镜

E. F. L = 1

B. F. L = 0.564

FNo. = 2

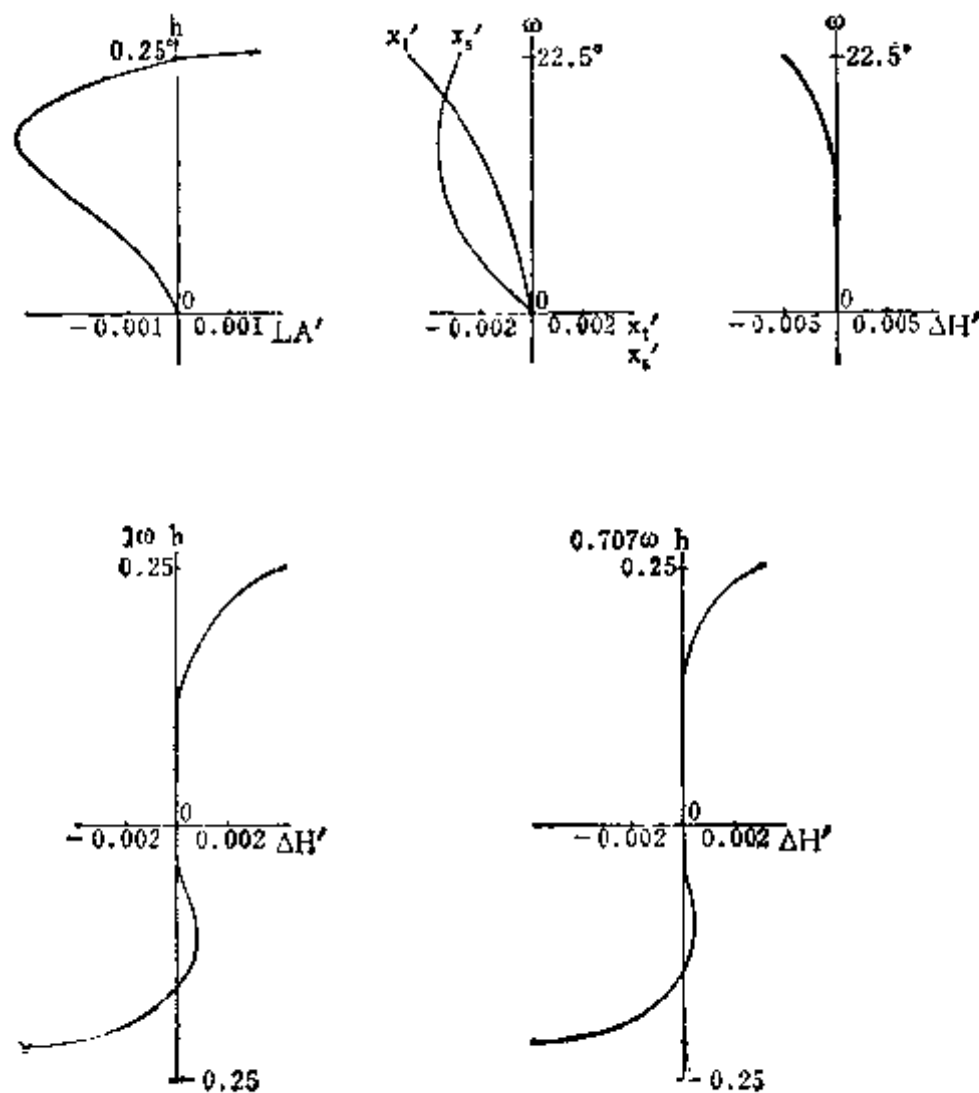
F. A. = $\pm 22.5^\circ$



| 序号 | r | d | n_D | v_D | 序号 | r | d | n_D | v_D |
|----|--------|---------|-------|-------|----|---------|--------|-------|-------|
| 1 | 0.5379 | 0.0948 | 1.744 | 44.9 | 6 | -0.2665 | 0.0673 | 1.755 | 27.5 |
| 2 | 1.1950 | 0.0577 | | | 7 | -0.3913 | 0.0192 | | |
| 3 | 0.3269 | 0.1138 | 1.717 | 47.9 | 8 | 7.6923 | 0.0712 | 1.713 | 53.9 |
| 4 | 1.9231 | 0.0173 | 1.728 | 28.7 | 9 | -0.5150 | | | |
| 5 | 0.2263 | 0.2212* | | | | | | | |

$$0.2212^* = 0.1100 - 0.1112$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|------------|-----------------|
| | -0.0015 | 0.00017 | 0.00027 | -0.0018 | 0.00037 | 0.41 | -1.21% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K_{T1}^* | $K_{F0.7}^*$ |
| 100 | 0.0017 | -0.0050 | -0.0047 | -0.0030 | -0.0017 | -0.010 | -0.00016 |
| 70 | -0.0032 | -0.00061 | -0.0027 | -0.0041 | 0.0014 | -0.0034 | -0.00055 |



编号: 02-00-054

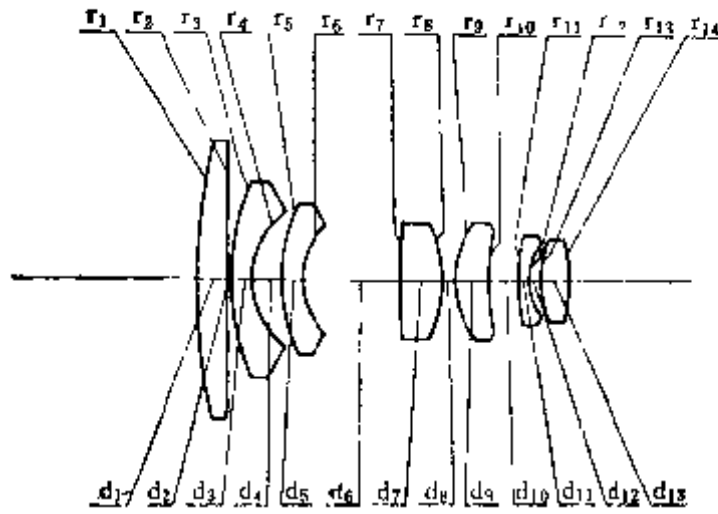
具有负前组的大孔径物镜

E. F. L = 100

B. F. L = 124.8

FN₀ = 2

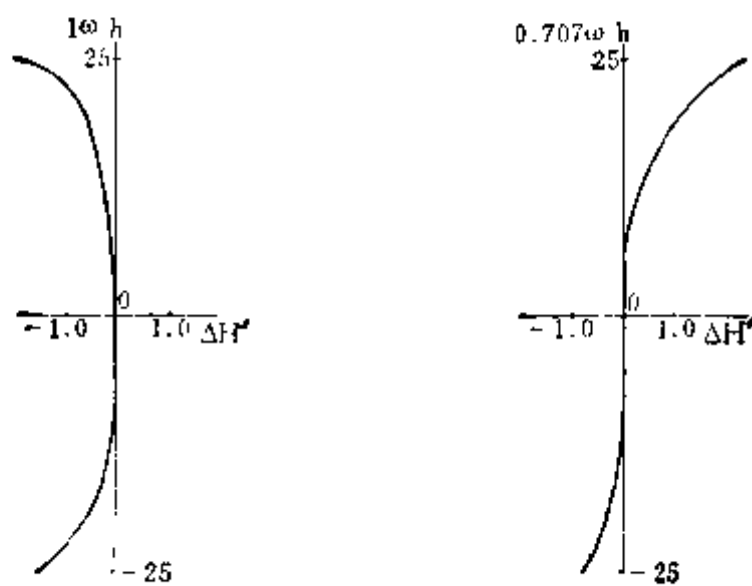
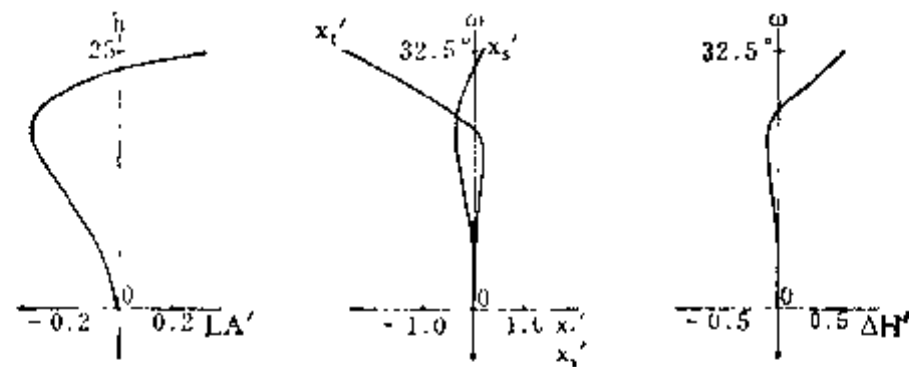
F. A. = ± 32.5°



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|--------|-------|----------------|----------------|----|---------|-------|----------------|----------------|
| 1 | 645.25 | 32.0 | 1.5174 | 29.5 | 8 | -155.10 | 14.0 | | |
| 2 | ∞ | 5.0 | | | 9 | 101.05 | 37.0 | 1.5687 | 63.1 |
| 3 | 289.25 | 21.0 | 1.5687 | 63.1 | 10 | 250.15 | 32.0* | | |
| 4 | 89.04 | 32.0 | | | 11 | 246.20 | 9.5 | 1.8052 | 25.5 |
| 5 | 186.75 | 21.0 | 1.5822 | 42.0 | 12 | 66.15 | 10.8 | | |
| 6 | 80.17 | 106.1 | | | 13 | 102.94 | 32.0 | 1.6779 | 55.5 |
| 7 | 885.60 | 44.5 | 1.5687 | 63.1 | 14 | -196.14 | | | |

32.0* = 16.0 + 16.0

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HI | QP(1ω) |
|---------|-----------------|-----------------|------------------|------------------|-------------------------------------|-------------------|---------------------|
| | -0.16 | 0.28 | -0.19 | 0.20 | 0.10 | 62.69 | 1.01% |
| h 或 ω % | LA' | ΔH' | x _t ' | x _s ' | x _t ' - x _s ' | K ₁₁ ' | K _{T0.7} ' |
| 100 | 0.34 | 0.63 | 2.57 | 0.11 | -2.68 | -1.73 | -0.45 |
| 70 | 0.35 | -0.081 | 0.14 | -0.35 | 0.49 | 0.74 | 0.26 |



编号: 02-00-055

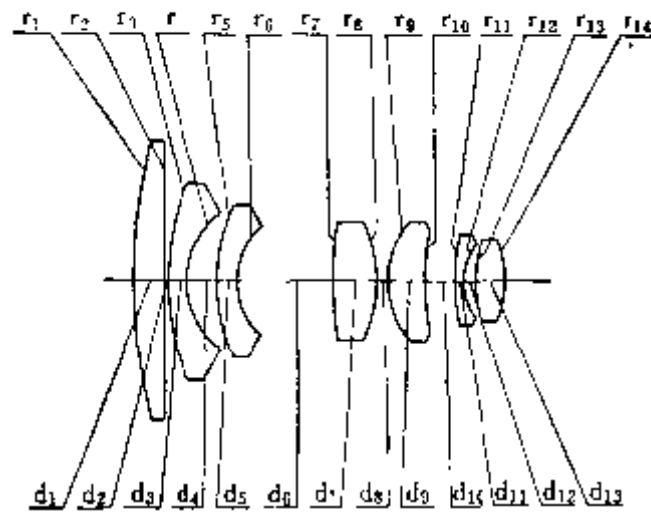
具有负前组的大孔径物镜

E. F. L = 100

B. F. L = 129.7

FNo. = 2

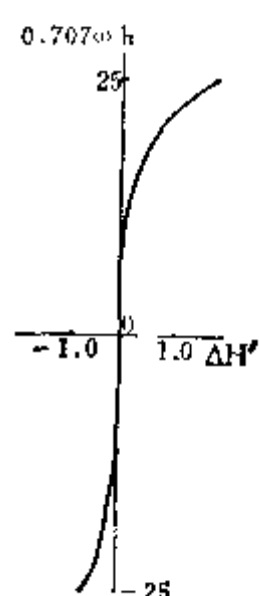
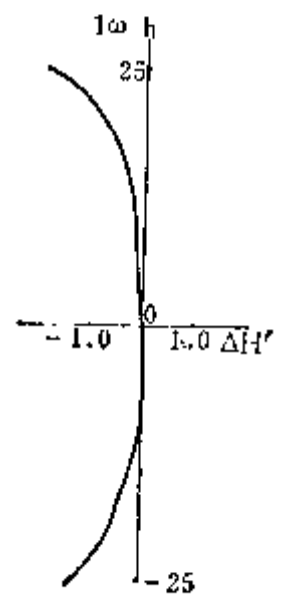
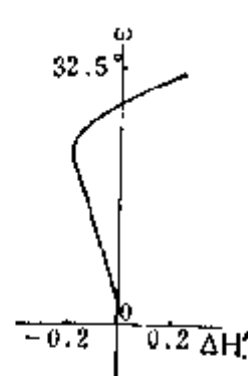
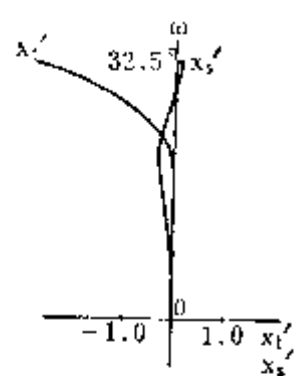
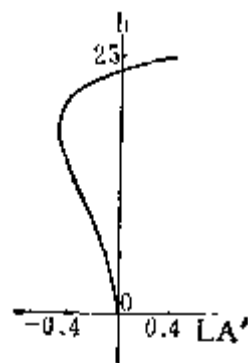
F. A. = $\pm 32.5^\circ$



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|----------|-------|----------------|----------------|----|---------|-------|----------------|----------------|
| 1 | 737.70 | 30.5 | 1.8052 | 25.5 | 8 | -170.10 | 9.0 | | |
| 2 | ∞ | 5.0 | | | 9 | 108.12 | 38.0 | 1.6200 | 60.3 |
| 3 | 359.05 | 21.5 | 1.5225 | 59.1 | 10 | 249.10 | 35.0* | | |
| 4 | 91.04 | 35.7 | | | 11 | 371.08 | 8.5 | 1.8052 | 25.5 |
| 5 | 182.45 | 21.5 | 1.6477 | 33.9 | 12 | 70.42 | 9.5 | | |
| 6 | 83.88 | 108.0 | | | 13 | 106.10 | 31.0 | 1.6935 | 53.6 |
| 7 | 1161.55 | 46.0 | 1.6200 | 60.3 | 14 | -174.95 | | | |

35.0* = 17.5 + 17.5

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|------------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.21 | 0.20 | -0.004 | -0.16 | -0.31 | 62.72 | 0.36% |
| h $\pm \omega$ % | LA' | $\Delta H'$ | λ'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.43 | 0.21 | -2.73 | 0.11 | -2.84 | -1.68 | -0.49 |
| 70 | -0.50 | -0.19 | -0.031 | -0.281 | 0.250 | 0.57 | 0.13 |



编号: 02-00-056

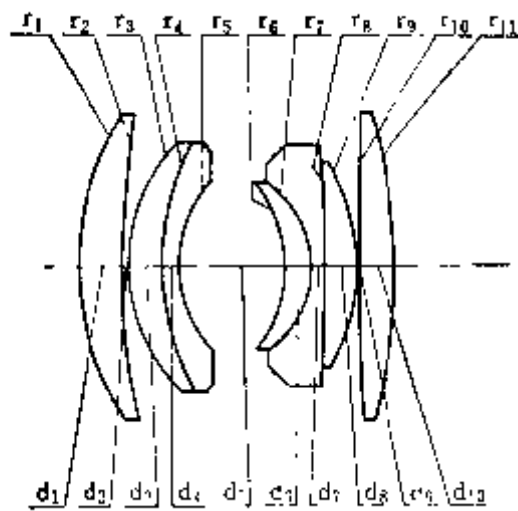
大 孔 径 摄 影 物 镜

E.F.L=1.05

B.F.L=0.725

FN₀. =1.8

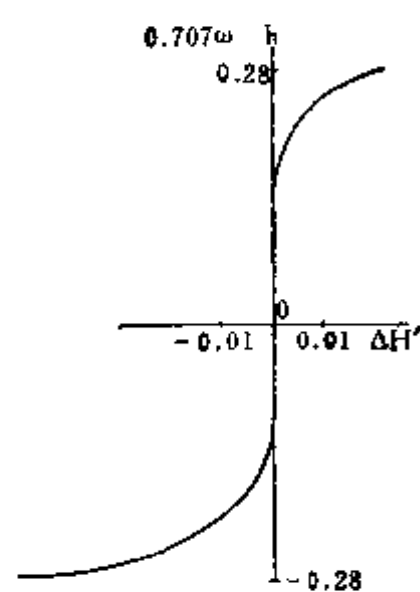
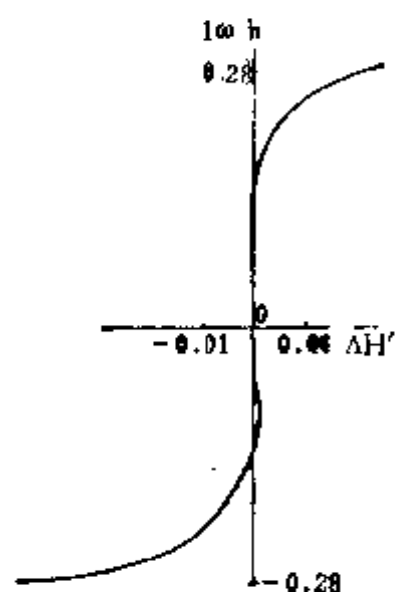
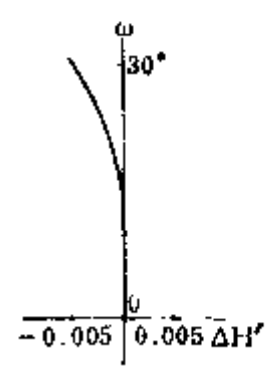
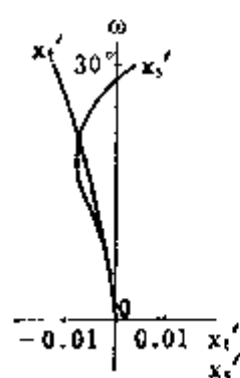
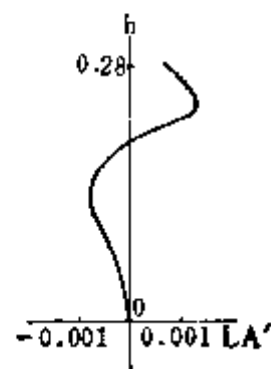
F.A. = ± 30°



| 序 号 | r | d | n _D | v _D | 序 号 | r | d | n _D | v _D |
|--------|--------|--------|----------------|----------------|--------|--------|-------|----------------|----------------|
| 1 | 0.579 | 0.097 | 1.6534 | 50.8 | 7 | -0.215 | 0.026 | 1.5750 | 41.3 |
| 2 | 1.787 | 0.005 | | | 8 | -3.299 | 0.069 | 1.6779 | 55.3 |
| 3 | 0.369 | 0.079 | 1.6534 | 50.8 | 9 | -0.422 | 0.001 | | |
| 4 | 0.573 | 0.032 | 1.6987 | 30.1 | 10 | 4.259 | 0.083 | 1.6395 | 55.5 |
| 5 | 0.267 | 0.230* | | | 11 | -1.057 | | | |
| 6 | -0.297 | 0.055 | 1.6204 | 60.3 | | | | | |

0.230* = 0.120 + 0.110

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HI | QP(1ω) |
|---------|-----------------|-----------------|------------------|------------------|-------------------------------------|-------------------|---------------------|
| | -0.00089 | -0.00074 | 0.00063 | -0.0043 | -0.00062 | 0.60 | -0.85% |
| h 或 ω % | LA' | ΔH' | x _t ' | Δ _s ' | x _t ' - x _s ' | K ₁₁ ' | K _{10.7} ' |
| 100 | 0.00067 | -0.0051 | -0.011 | 0.0036 | -0.015 | -0.012 | -0.0029 |
| 70 | -0.000093 | -0.0011 | -0.0086 | -0.0080 | -0.00056 | -0.016 | -0.0030 |



编号: 02-00-057

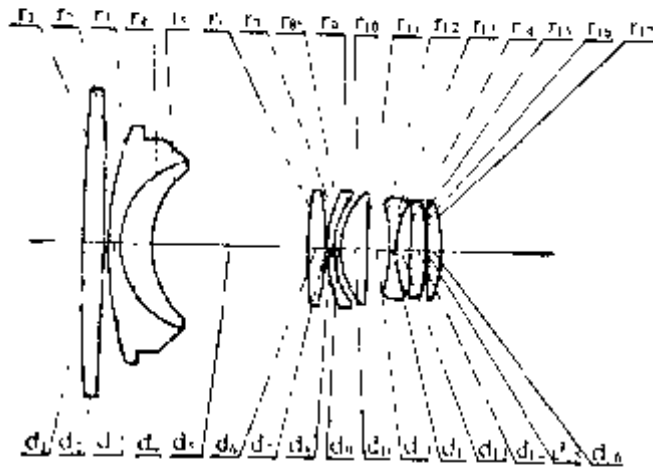
摄影或电影摄影用的广角物镜

E.F.L=100

B.F.L=126.9

FNo.=2

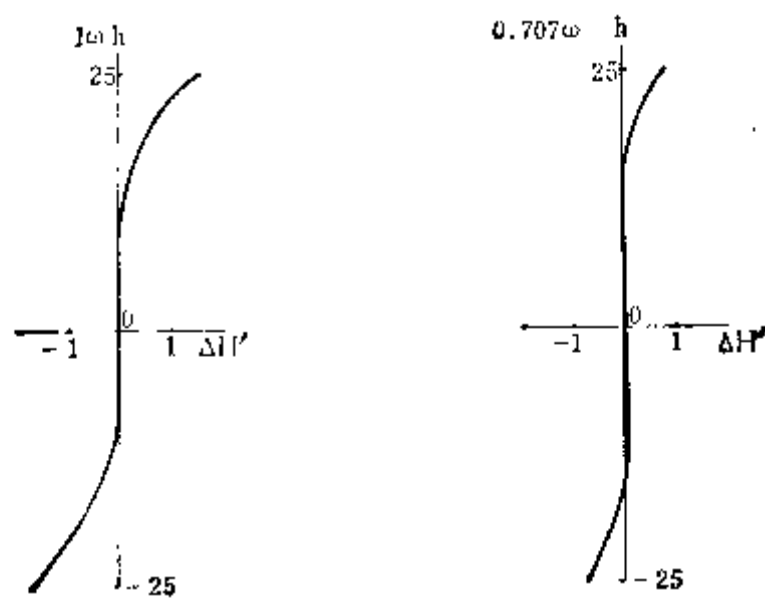
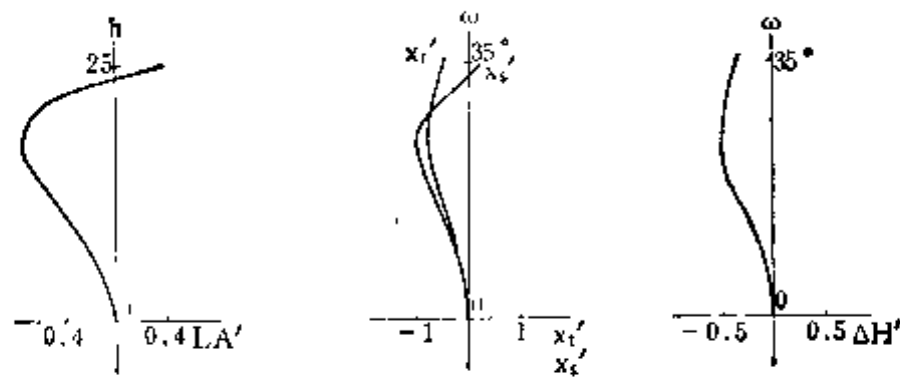
F.A.=±35°*



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|--------|----------------|-------|----|----------|--------|----------------|-------|
| 1 | 1451.90 | 16.43 | 1.52630 | 51.00 | 10 | 66.49 | 19.63 | 1.71700 | 47.90 |
| 2 | -1451.90 | 2.49 | | | 11 | 15706.80 | 18.00* | | |
| 3 | 263.32 | 9.03 | 1.71700 | 47.90 | 12 | -165.15 | 5.79 | 1.78470 | 26.10 |
| 4 | 67.70 | 24.93 | 1.61293 | 36.95 | 13 | 76.77 | 10.17 | | |
| 5 | 78.34 | 123.04 | | | 14 | 991.49 | 11.78 | 1.71300 | 53.89 |
| 6 | 458.38 | 12.01 | 1.69968 | 34.95 | 15 | -239.62 | 0.59 | | |
| 7 | -297.45 | 0.33 | | | 16 | 876.30 | 10.21 | 1.71300 | 53.89 |
| 8 | 104.55 | 6.02 | 1.62364 | 36.75 | 17 | -102.45 | | | |
| 9 | 68.55 | 6.22 | | | | | | | |

18.00* = 9.00 + 9.00

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QIP(1ω) |
|---------|--------------|--------------|-----------------|-----------------|--------------|------------------|--------------------|
| | -0.29 | 0.064 | -0.018 | -0.31 | -0.66 | 68.52 | -0.50% |
| h 或 ω % | LA' | ΔH' | x' _t | x' _s | x'_t - x'_s | K' _{T1} | N' _{T0.7} |
| 100 | 0.36 | -0.34 | -0.53 | 0.21 | -0.74 | -0.11 | -0.12 |
| 70 | -0.72 | -0.50 | -0.85 | -0.93 | 0.082 | -0.025 | -0.035 |



编号: 02-00-058

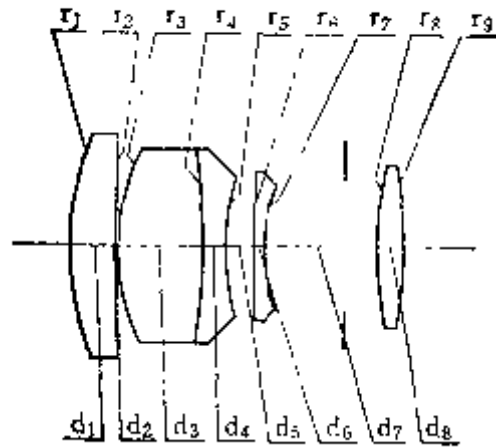
摄影或电影摄影用的大孔径物镜

E.F.L = 100

B.F.L = 44.59

FN₀ = 1.9

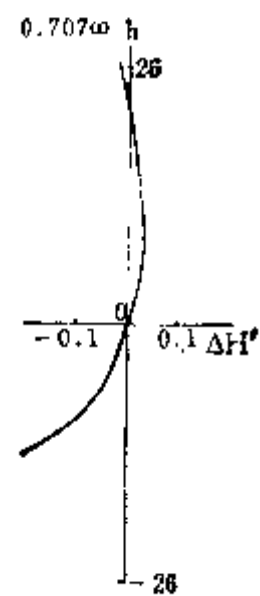
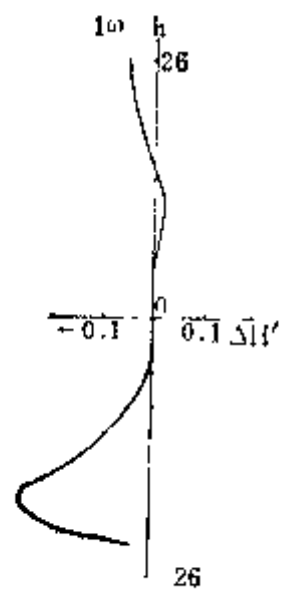
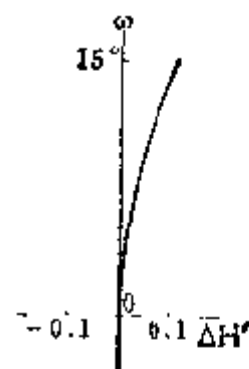
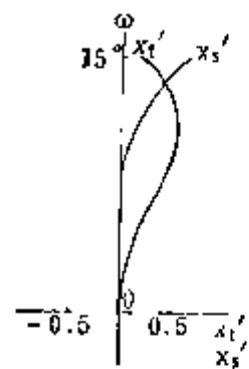
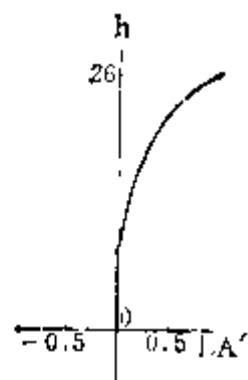
F.A. = ± 15°



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|-------|----------------|-------|----|--------|--------|----------------|-------|
| 1 | 59.04 | 8.91 | 1.7279 | 37.76 | 6 | ∞ | 1.67 | 1.7471 | 27.50 |
| 2 | 1513.25 | 0.11 | | | 7 | 30.08 | 22.28* | | |
| 3 | 45.93 | 16.71 | 1.6255 | 57.87 | 8 | 83.62 | 5.57 | 1.7148 | 36.25 |
| 4 | -111.41 | 4.46 | 1.7471 | 27.50 | 9 | -89.11 | | | |
| 5 | 54.60 | 5.57 | | | | | | | |

22.28* = 12.28 + 10.00

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HI | QP(1ω) |
|---------|-----------------|-----------------|------------------|------------------|-------------------------------------|-----------------|-------------------|
| | 0.016 | -0.077 | 0.12 | -0.11 | 0.13 | 26.60 | 0.41% |
| h 或 ω % | LA' | ΔH' | λ _t ' | λ _s ' | λ _t ' - λ _s ' | K _{T1} | K _{T0.7} |
| 100 | 1.00 | 0.11 | 0.16 | 0.68 | -0.52 | 1.72 | -0.13 |
| 70 | 0.24 | 0.075 | 0.59 | 0.13 | 0.46 | -0.99 | -0.23 |



编号: 02-00-059

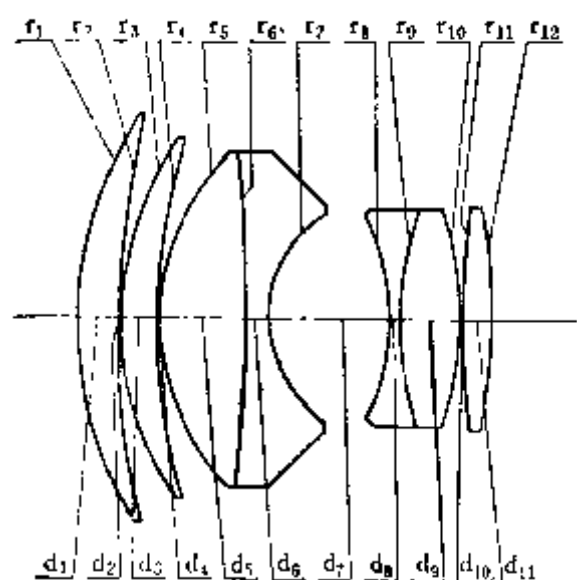
大 孔 径 高 斯 型 物 镜

E.F.L=102

B.F.L=46.03

FNo.=1.3

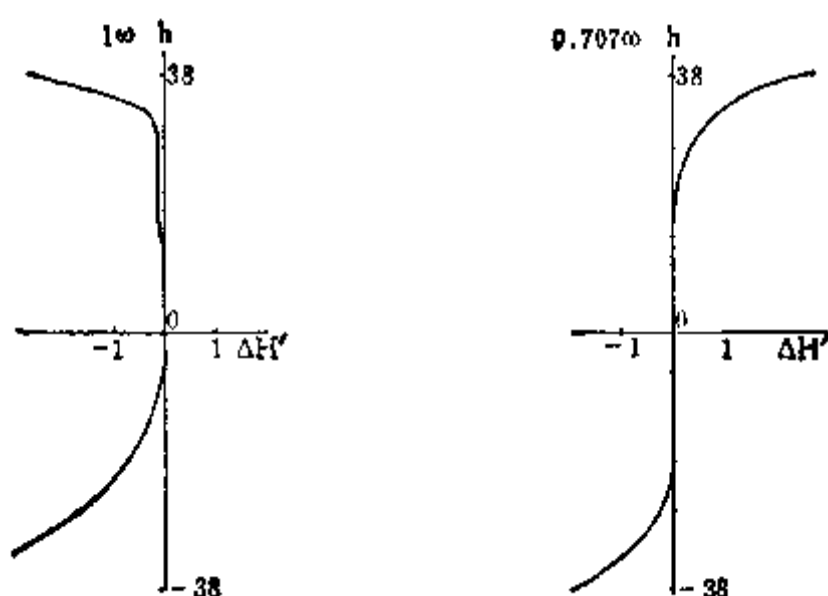
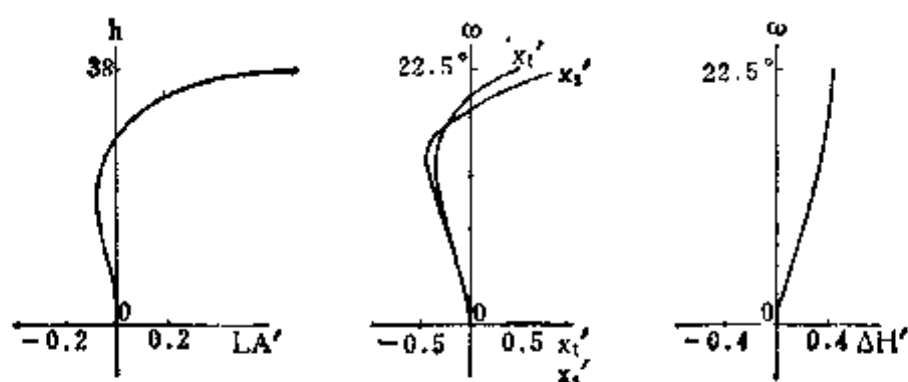
F.A.=±22.5°



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|-------|----------------|------|----|---------|--------|----------------|------|
| 1 | 83.496 | 8.75 | 1.6780 | 55.5 | 7 | 26.951 | 20.19* | | |
| 2 | 202.980 | 0.10 | | | 8 | -44.198 | 2.35 | 1.54072 | 47.2 |
| 3 | 70.207 | 7.53 | 1.6910 | 54.8 | 9 | 81.438 | 12.74 | 1.7170 | 47.9 |
| 4 | 132.340 | 0.60 | | | 10 | -74.480 | 0.10 | | |
| 5 | 49.059 | 18.98 | 1.6393 | 44.9 | 11 | 263.439 | 6.86 | 1.7340 | 51.1 |
| 6 | -319.480 | 4.70 | 1.72825 | 28.3 | 12 | -97.021 | | | |

20.19* = 8.00 + 12.19

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1%) |
|---------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | -0.15 | 0.064 | -0.037 | -0.46 | 0.95 | 42.09 | 1.02% |
| h 或 ω % | LA' | ΔH' | x_t' | x_s' | $x_t' - x_s'$ | K_{T1}' | $K_{10.7}'$ |
| 100 | 0.69 | 0.43 | 0.50 | 0.73 | -0.23 | -4.95 | -0.88 |
| 70 | -0.037 | -0.35 | -0.36 | -0.41 | 0.05 | 0.25 | -0.021 |



编号: 02-00-060

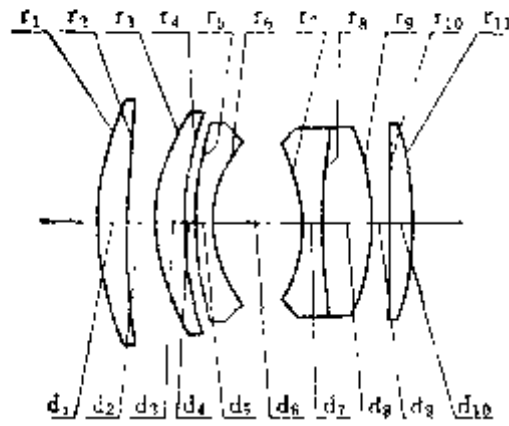
摄 影 物 镜

E.F.L = 1

B.F.L = 0.745

FN₀ = 2

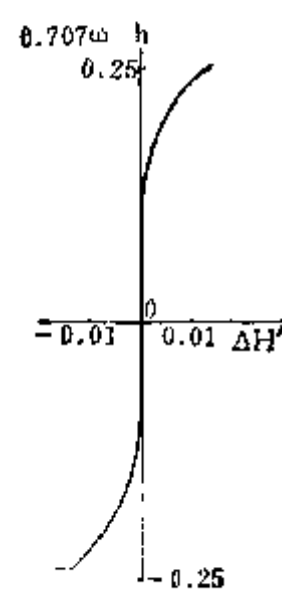
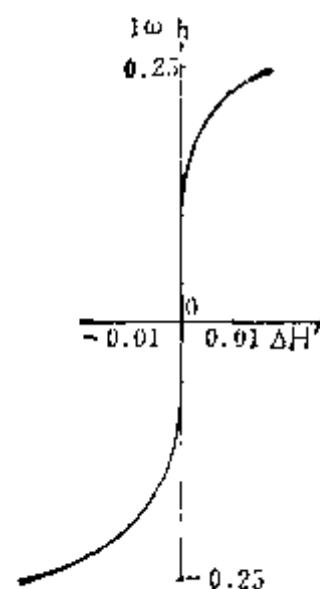
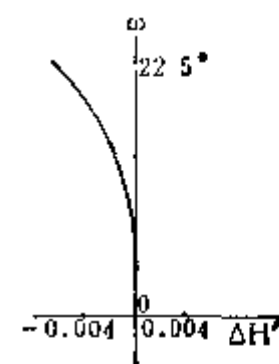
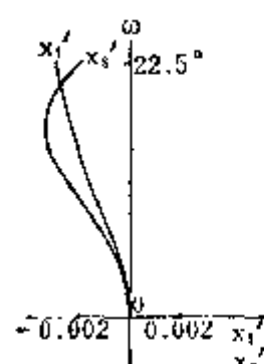
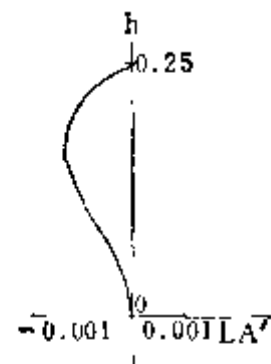
F.A. = ± 22.5° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|--------|--------|----------------|------|----|---------|-------|----------------|------|
| 1 | 0.6164 | 0.057 | 1.72341 | 50.1 | 7 | -0.3209 | 0.036 | 1.67764 | 32.0 |
| 2 | 1.7313 | 0.051 | | | 8 | 1.5026 | 0.103 | 1.69400 | 54.6 |
| 3 | 0.4079 | 0.068 | 1.69400 | 54.6 | 9 | -0.5003 | 0.035 | | |
| 4 | 0.7221 | 0.020 | | | 10 | ∞ | 0.056 | 1.82450 | 43.2 |
| 5 | 0.7245 | 0.036 | 1.64416 | 34.4 | 11 | -0.6521 | | | |
| 6 | 0.2630 | 0.190* | | | | | | | |

0.190* = 0.100 + 0.090

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HI | QP(1ω) |
|---------|-----------------|-----------------|-----------------------------|-----------------------------|---|------------------------------|--------------------------------|
| | -0.00074 | 0.00000026 | 0.00025 | -0.0016 | -0.0023 | 0.41 | -1.64% |
| h 或 ω % | LA' | ΔH' | x _t ^e | x _s ^e | x _t ^e - x _s ^e | K _{T1} ^e | K _{T0.7} ^e |
| 100 | 0.00010 | -0.0067 | -0.0029 | -0.0021 | -0.00079 | -0.0067 | -0.0022 |
| 70 | -0.0014 | -0.0020 | -0.0024 | -0.0036 | 0.0012 | -0.0011 | -0.00061 |



编号: 02-00-063

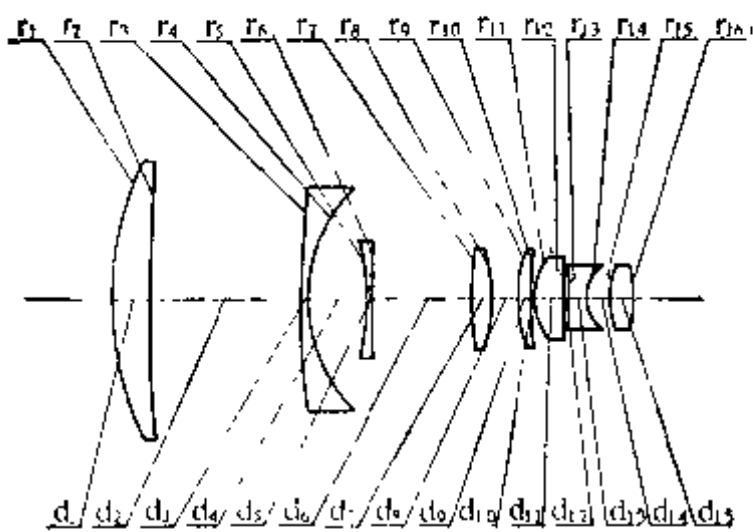
大 孔 径 物 镜

E.F.L=100

B.F.L=37.2

FN₀. =1.8

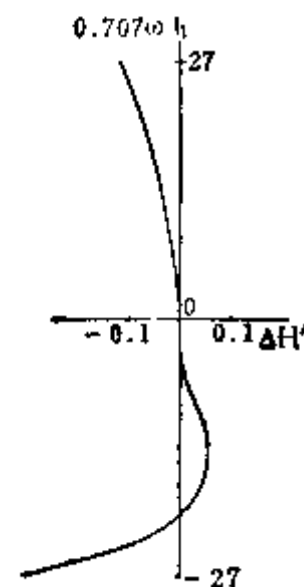
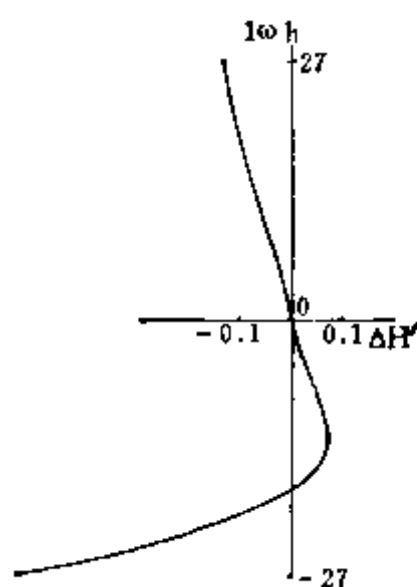
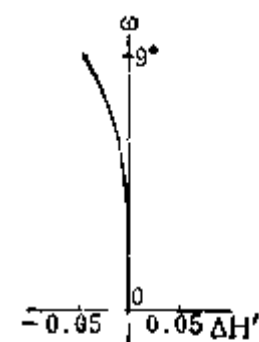
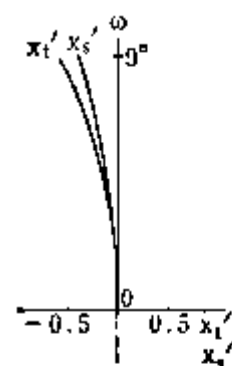
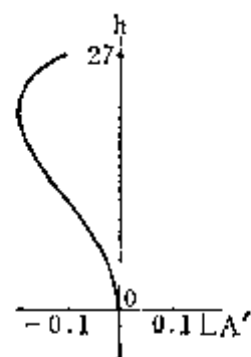
F.A. = ±9°**



| 序号 | r | d | n _D | v _D | 序号 | r | d | n _D | v _D |
|----|---------|--------|----------------|----------------|----|---------|--------|----------------|----------------|
| 1 | 291.94 | 31.25 | 1.71615 | 53.7 | 9 | 91.01 | 11.69 | 1.68081 | 55.3 |
| 2 | 1621.97 | 131.58 | | | 10 | 250.05 | 0.50 | | |
| 3 | 924.46 | 6.25 | 1.64648 | 47.5 | 11 | 57.13 | 28.75 | 1.69400 | 54.6 |
| 4 | 136.48 | 50.20 | | | 12 | ∞ | 0.81 | | |
| 5 | -173.49 | 6.25 | 1.62410 | 36.1 | 13 | -424.87 | 16.38 | 1.76846 | 26.8 |
| 6 | ∞ | 87.01 | | | 14 | 32.67 | 20.13* | | |
| 7 | 587.81 | 12.50 | 1.52010 | 65.0 | 15 | 59.04 | 18.07 | 1.67341 | 46.9 |
| 8 | -225.62 | 25.00 | | | 16 | -168.78 | | | |

20.13* = 10.13 + 10

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1ω) |
|---------|--------------|--------------|------------------|------------------|-------------------------------------|-----------------|-------------------|
| | -0.087 | 0.027 | -0.010 | -0.064 | -0.0023 | 16.13 | -0.29% |
| h 或 ω % | LA' | ΔH' | x _t ' | x _s ' | x _t ' - x _s ' | K _{T1} | K _{T0.7} |
| 100 | -0.11 | -0.047 | -0.58 | -0.44 | -0.14 | -0.49 | -0.054 |
| 70 | -0.19 | -0.010 | -0.29 | -0.23 | -0.06 | -0.21 | -0.012 |



编号: 02-00-064

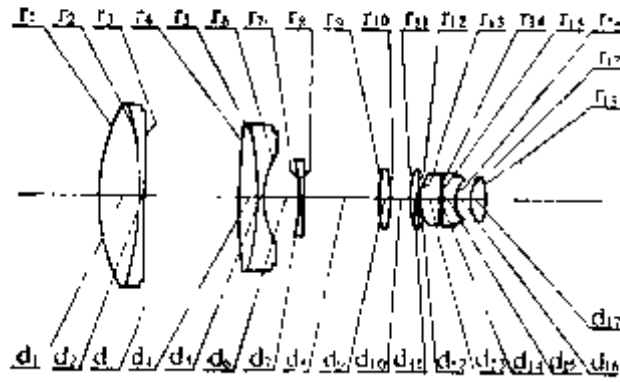
大 孔 径 物 镜

E.F.L = 100

B.F.L = 37.2

FNo. = 1.8

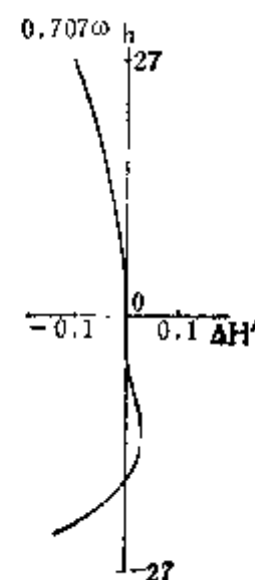
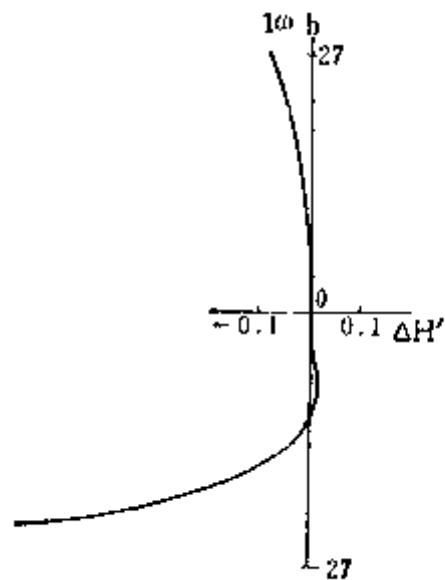
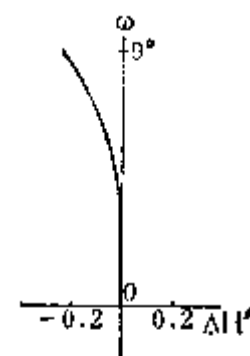
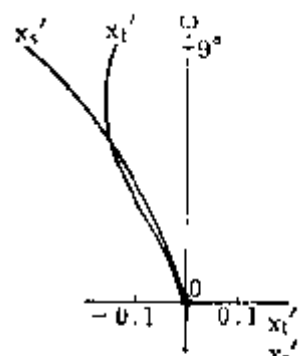
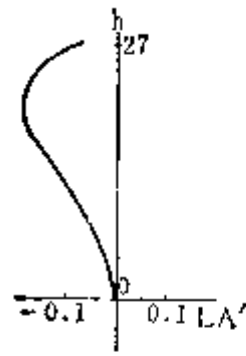
F.A. = $\pm 9^\circ$



| 序号 | r | d | n_D | v_D | 序号 | r | d | n_D | v_D |
|----|----------|--------|---------|-------|----|----------|--------|---------|-------|
| 1 | 270.37 | 50.01 | 1.6207 | 49.5 | 10 | -225.62 | 25.00 | | |
| 2 | -438.45 | 9.38 | 1.76846 | 26.8 | 11 | 91.01 | 11.69 | 1.68081 | 55.3 |
| 3 | 15883.63 | 122.08 | | | 12 | 250.04 | 0.50 | | |
| 4 | 944.50 | 21.88 | 1.76346 | 26.8 | 13 | 57.13 | 28.75 | 1.69400 | 54.6 |
| 5 | -375.06 | 6.25 | 1.62287 | 60.1 | 14 | ∞ | 0.81 | | |
| 6 | 111.99 | 49.88 | | | 15 | -124.87 | 16.38 | 1.76846 | 26.8 |
| 7 | -173.49 | 6.25 | 1.62410 | 36.1 | 16 | 32.67 | 20.13* | | |
| 8 | ∞ | 96.89 | | | 17 | 59.04 | 18.07 | 1.67341 | 46.9 |
| 9 | 587.81 | 12.50 | 1.52010 | 65.0 | 18 | -168.78 | | | |

$$20.13^* = 10.13 + 10.00$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|--------------|--------------|--------------|--------------|--------------|---------------|----------|------------|
| | -0.081 | 0.014 | -0.0047 | -0.059 | -0.058 | 16.14 | -1.47% |
| h 或 ω | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K_{T1} | $K_{T0.7}$ |
| 100 | -0.073 | -0.23 | -0.15 | -0.31 | 0.16 | -0.84 | -0.12 |
| 70 | -0.17 | -0.058 | -0.17 | -0.19 | 0.016 | -0.28 | -0.036 |



编号: 02-00-065

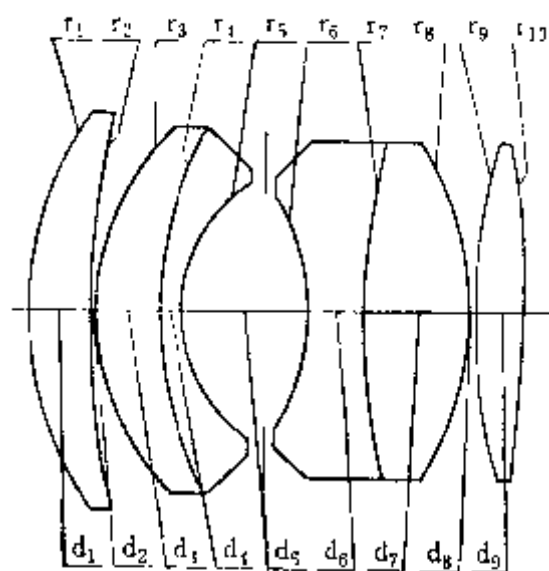
大孔径高斯型物镜

E.F.L = 1

B.F.L = 0.655

FN₀ = 1.2

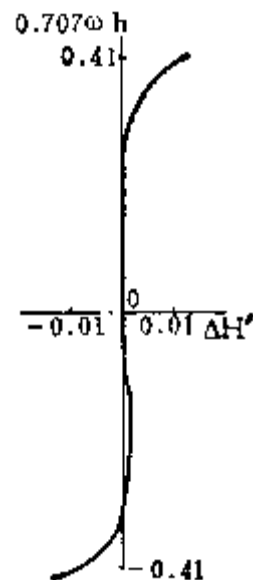
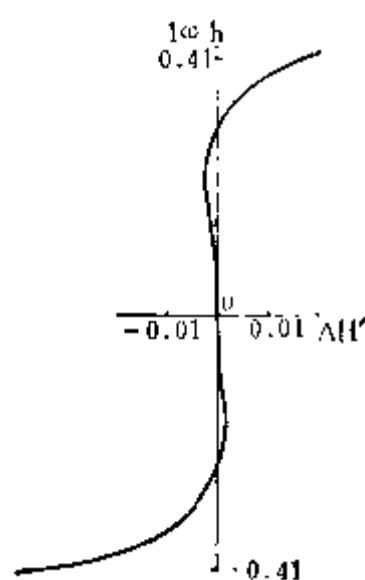
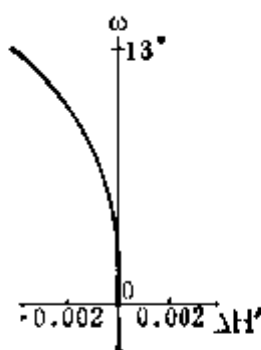
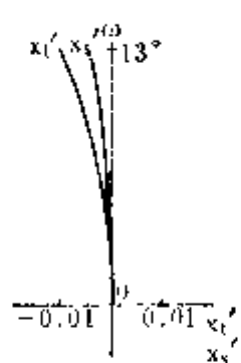
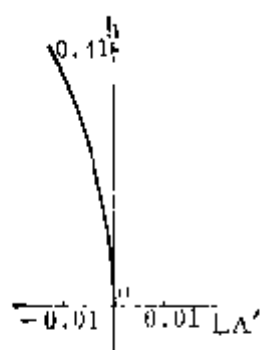
F.A. = ± 13°



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|----|-------|--------|-------|------|----|--------|-------|-------|------|
| 1 | 0.687 | 0.126 | 1.788 | 50.5 | 6 | -0.419 | 0.110 | 1.511 | 28.1 |
| 2 | 1.895 | 0.0007 | | | 7 | 1.431 | 0.213 | 1.734 | 51.0 |
| 3 | 0.510 | 0.128 | 1.807 | 40.6 | 8 | -0.607 | 0.004 | | |
| 4 | 0.760 | 0.013 | 1.699 | 30.1 | 9 | 1.102 | 0.103 | 1.788 | 47.4 |
| 5 | 0.300 | 0.256* | | | 10 | -2.143 | | | |

0.256* = 0.167 + 0.089

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP(1ω) |
|---------|--------------|--------------|--------------|--------------|---------------------|------------|----------------|
| | -0.0041 | 0.000089 | -0.00051 | -0.0012 | -0.0030 | 0.23 | -1.83% |
| h 或 ω % | LA' | ΔH' | χ_t' | χ_s' | $\chi_t' - \chi_s'$ | K_{I_1}' | $K_{I_{0.7}}'$ |
| 100 | -0.012 | -0.0042 | -0.0094 | -0.0044 | -0.0050 | -0.014 | -0.0018 |
| 70 | -0.0056 | -0.0014 | -0.0044 | -0.0024 | -0.0020 | -0.00096 | -0.00020 |



编号: 02-00-066

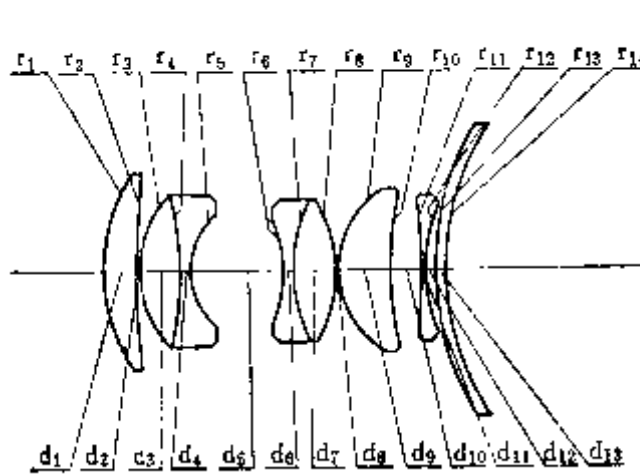
电 视 摄 影 物 镜

E.F.L = 102

B.F.L = 1.52

FNo. = 1.5

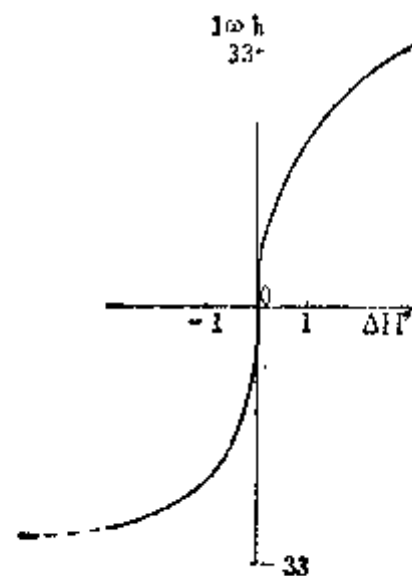
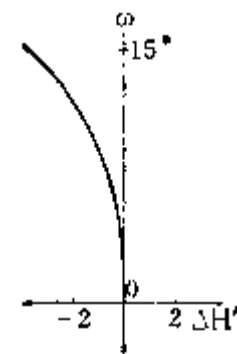
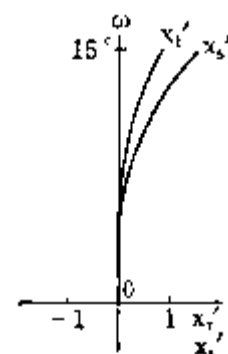
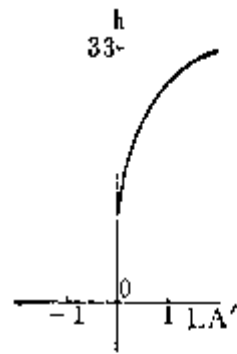
F.A. = $\pm 15^\circ$



| $\frac{1}{f}$ | r | d | n | v | $\frac{1}{f}$ | r | d | n | v |
|---------------|--------|--------|-------|------|---------------|--------|-------|-------|------|
| 1 | 73.0 | 14.00 | 1.694 | 54.6 | 8 | -58.9 | 0.30 | | |
| 2 | 110.0 | 0.30 | | | 9 | 41.1 | 23.80 | 1.673 | 47.0 |
| 3 | 44.4 | 17.90 | 1.694 | 54.6 | 10 | 132.3 | 12.55 | | |
| 4 | -170.0 | 4.80 | 1.813 | 25.3 | 11 | -239.0 | 1.8 | 1.813 | 25.3 |
| 5 | 30.8 | 39.50* | | | 12 | 68.8 | 3.6 | | |
| 6 | -59.6 | 4.30 | 1.678 | 32.0 | 13 | 111.5 | 5.4 | 1.512 | 33.1 |
| 7 | 66.6 | 18.20 | 1.694 | 54.6 | 14 | 106.3 | | | |

39 50* = 20.00 + 19.50

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP(100) |
|------------------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | 0.059 | -0.096 | -0.021 | 0.17 | -1.77 | 27.24 | -14.70% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{10.7}$ |
| 100 | 1.94 | -4.00 | 0.75 | 1.40 | -0.65 | -3.34 | -0.052 |
| 70 | 0.45 | -1.21 | 0.28 | 0.54 | -0.26 | -1.88 | -0.30 |



编号: 02-00-067

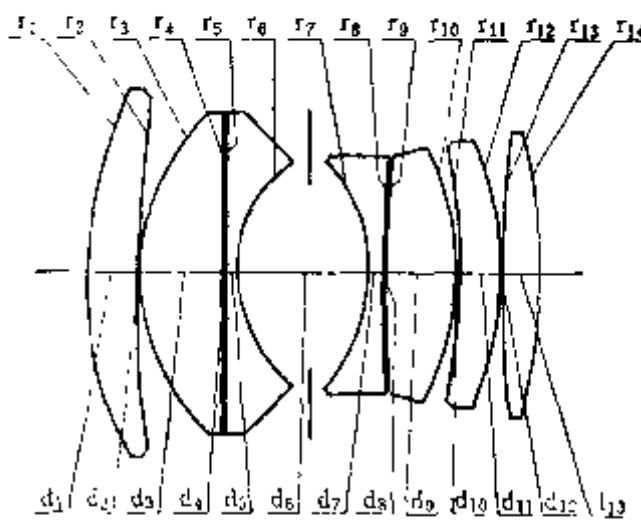
摄影物镜

E.F.L = 1

B.F.L = 0.66

FN₀ = 1.4

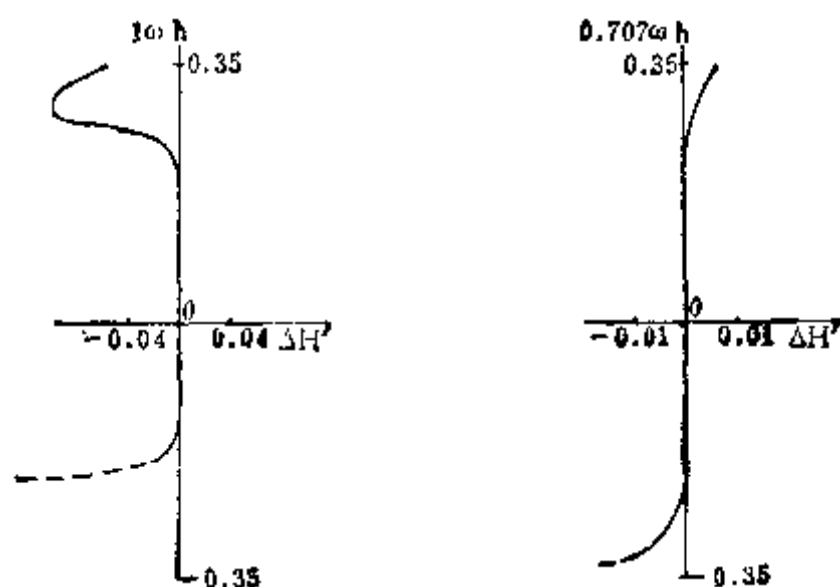
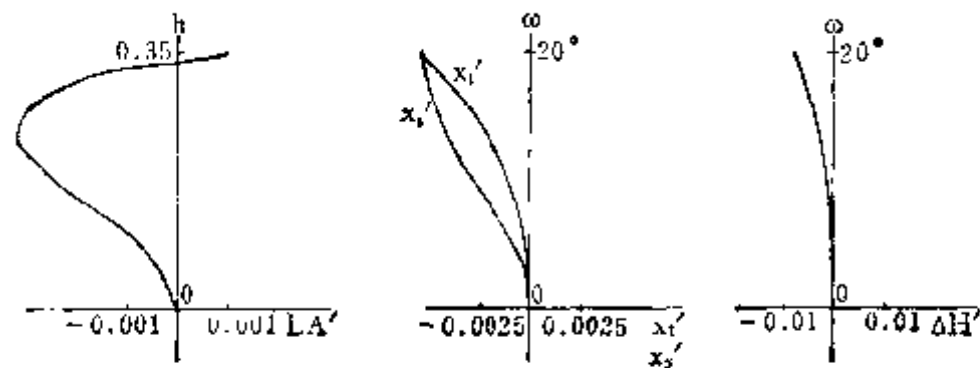
F.A. = ± 20°



| 序号 | r | d | n _D | v _d | 序号 | r | d | n _D | v _d |
|----|---------|---------|----------------|----------------|----|---------|--------|----------------|----------------|
| 1 | 0.8486 | 0.1149 | 1.71700 | 47.90 | 8 | 3.7272 | 0.0030 | | |
| 2 | 2.7160 | 0.0017 | | | 9 | 3.7272 | 0.1486 | 1.78443 | 43.77 |
| 3 | 0.4830 | 0.1774 | 1.62299 | 58.12 | 10 | -0.6125 | 0.0017 | | |
| 4 | ∞ | 0.0000 | | | 11 | -1.6178 | 0.0845 | 1.78443 | 43.77 |
| 5 | ∞ | 0.0253 | 1.57501 | 41.31 | 12 | -0.7766 | 0.0017 | | |
| 6 | 0.3004 | 0.2872* | | | 13 | 2.3860 | 0.0845 | 1.71700 | 47.90 |
| 7 | -0.3622 | 0.0372 | 1.80518 | 25.46 | 14 | -1.3571 | | | |

0.2872* = 0.1872 + 0.1000

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HI | QP(1ω) |
|---------|-----------------|-----------------|------------------|------------------|-------------------------------------|-----------------|-------------------|
| | -0.0030 | 0.00090 | 0.00067 | -0.0034 | -0.0012 | 0.36 | -1.92% |
| h 或 ω % | LA' | ΔH' | x ₁ ' | x ₂ ' | x ₃ ' - x ₂ ' | K _{T1} | K _{10.7} |
| 100 | 0.0010 | -0.0070 | -0.0032 | -0.0052 | 0.000037 | | |
| 50 | -0.0032 | -0.0024 | -0.0021 | -0.0012 | 0.0021 | | -0.00040 |



编号: 02-00-068

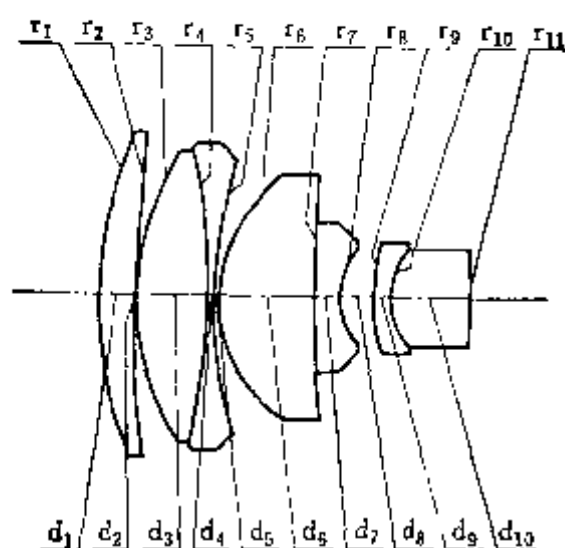
大 孔 径 摄 影 物 镜

E.F.L = 100

B.F.L = 6.89

FNo. = 1

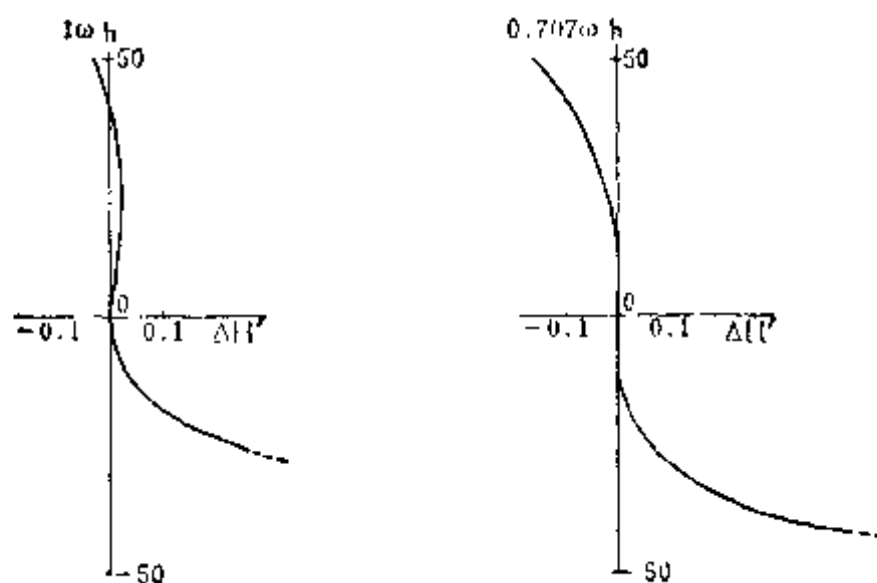
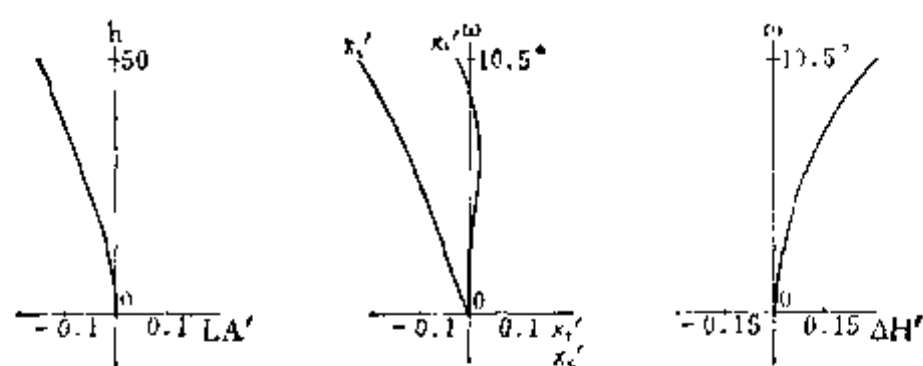
F.A. = $\pm 10.5^\circ$



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|----|--------|------|-------|------|----|--------|-------|-------|------|
| 1 | 152.6 | 15.4 | 1.699 | 30.0 | 7 | 957.4 | 9.5 | 1.795 | 28.4 |
| 2 | 537.2 | 0.2 | | | 8 | 26.9 | 12.4* | | |
| 3 | 108.1 | 27.8 | 1.694 | 53.4 | 9 | 63.0 | 6.4 | 1.603 | 60.7 |
| 4 | -259.1 | 3.4 | 1.728 | 28.7 | 10 | 26.7 | 31.4 | 1.788 | 50.5 |
| 5 | 179.2 | 0.8 | | | 11 | -386.3 | | | |
| 6 | 56.1 | 37.5 | 1.691 | 54.8 | | | | | |

12.4* = 8.0 + 4.4

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.13 | -0.060 | 0.10 | -0.28 | 0.50 | 18.17 | 1.66% |
| h 或 ω % | LA' | $\Delta H'$ | x_1' | x_2' | $x_1' - x_2'$ | K_{T1}' | $K_{T0.7}'$ |
| 100 | -0.15 | 0.30 | -0.026 | -0.22 | 0.194 | 3.05 | 0.41 |
| 70 | -0.10 | 0.15 | 0.013 | -0.15 | 0.163 | 0.44 | 0.077 |



编号: 02-00-069

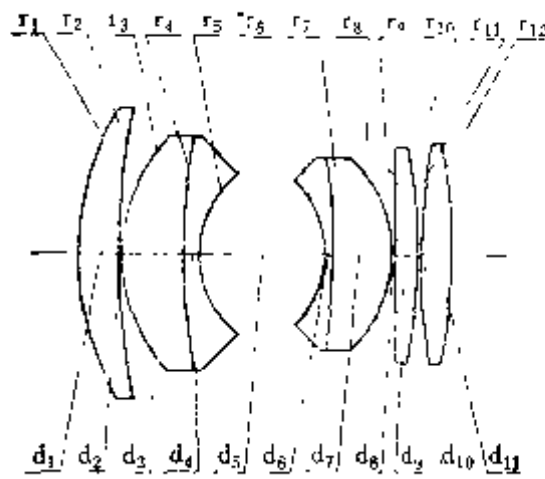
改进的高斯型物镜

E.F.L = 1

B.F.L = 0.575

FNo. = 1.4

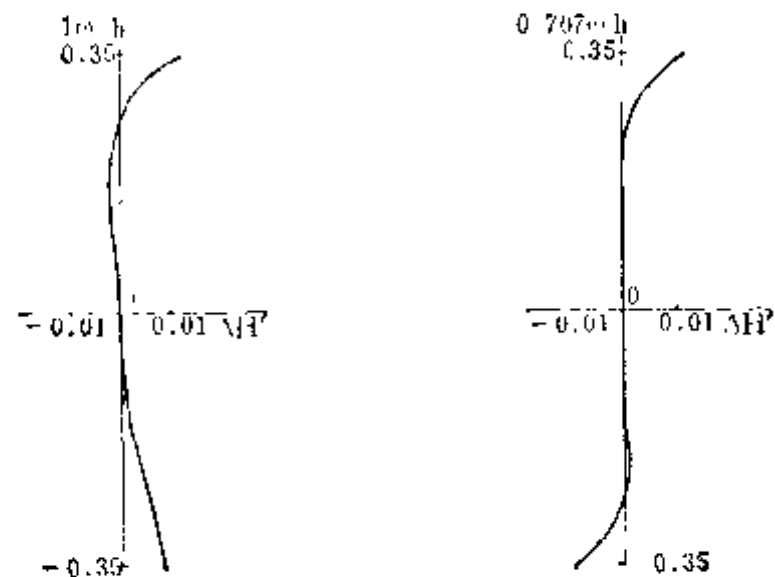
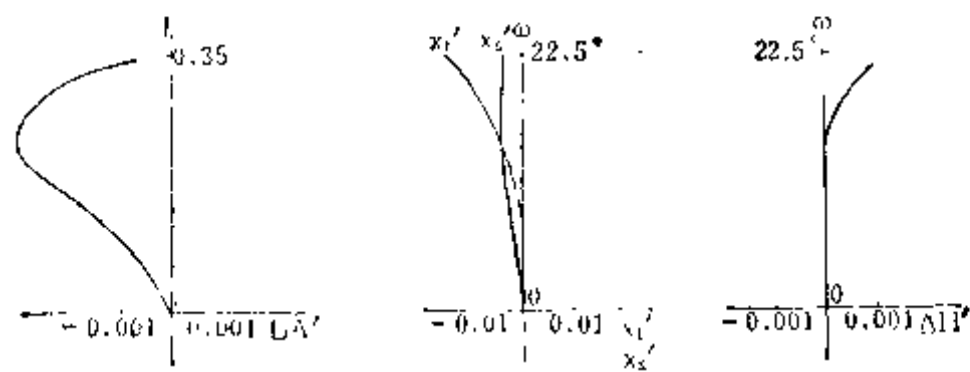
F.A. = $\pm 22.5^\circ$ **



| $\frac{r}{d}$ | r | d | n_d | v | $\frac{r}{d}$ | r | d | n_d | v |
|---------------|---------|---------|---------|-------|---------------|----------|--------|---------|-------|
| 1 | 0.1261 | 0.1111 | 1.65100 | 58.60 | 7 | -2.5000 | 0.1550 | 1.69680 | 55.61 |
| 2 | 2.2321 | 0.0020 | | | 8 | -0.3631 | 0.0020 | | |
| 3 | 0.1591 | 0.1651 | 1.69680 | 55.61 | 9 | -20.0000 | 0.0650 | 1.69350 | 53.51 |
| 4 | 2.5000 | 0.0340 | 1.60545 | 38.03 | 10 | -1.5104 | 0.0020 | | |
| 5 | 0.2733 | 0.3316* | | | 11 | 2.2805 | 0.0750 | 1.69350 | 53.51 |
| 6 | -0.2785 | 0.0220 | 1.70035 | 30.28 | 12 | -1.6935 | | 1 | |

$$0.3316^* = 0.1700 + 0.1615$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP(1 ω) |
|---------------|--------------|--------------|--------------|--------------|---------------------|----------|-----------------|
| | -0.0028 | 0.00018 | 0.00041 | -0.0031 | -0.000046 | 0.41 | 0.29% |
| 校正 $\omega\%$ | LA' | $\Delta H'$ | χ'_t | χ'_s | $\chi'_t - \chi'_s$ | K_{11} | $K_{T0.7}$ |
| 100 | -0.00071 | 0.0012 | -0.015 | -0.00407 | -0.011 | 0.010 | 0.0026 |
| 70 | -0.0031 | 0.000060 | -0.0019 | 0.00405 | 0.00485 | 0.0011 | 0.00072 |



编号: 02-00-070

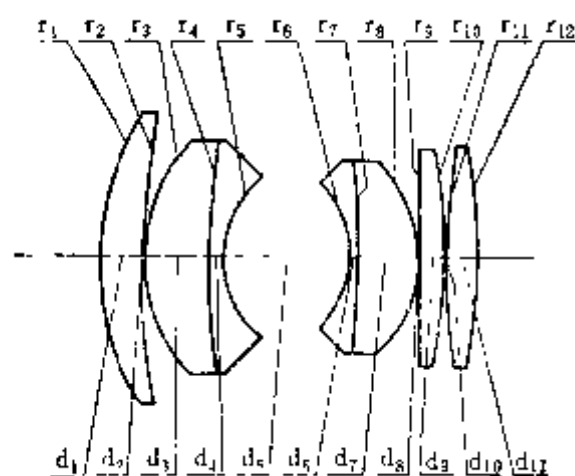
改进的高斯型物镜

E.F.L = 1

B.F.L = 0.562

FNo. = 1.4

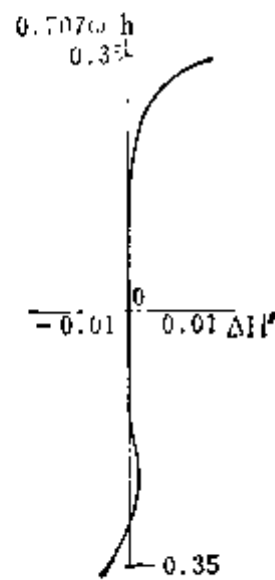
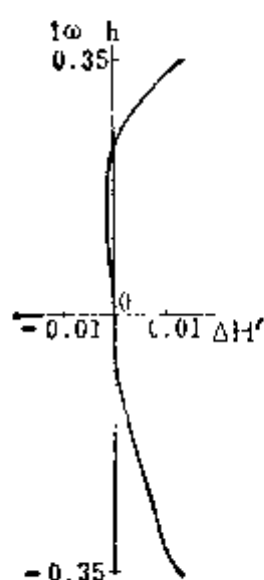
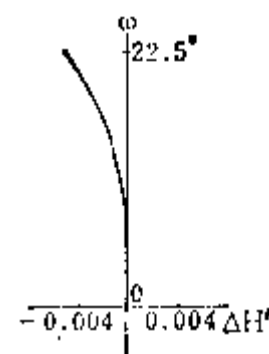
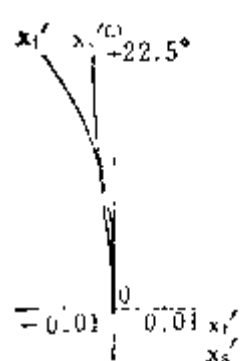
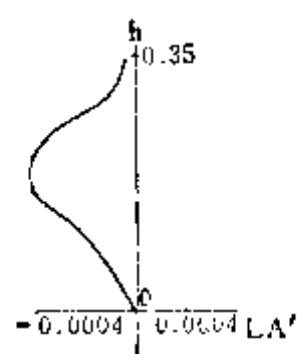
F.A. = $\pm 22.5^{\circ}$ **



| 序号 | r | d | n_d | v | 序号 | r | d | n_d | v |
|----|---------|---------|---------|-------|----|---------|--------|---------|-------|
| 1 | 0.7354 | 0.1330 | 1.65072 | 58.65 | 7 | -6.2246 | 0.1454 | 1.69109 | 54.66 |
| 2 | 2.2884 | 0.0020 | | | 8 | -0.3658 | 0.0341 | | |
| 3 | 0.4568 | 0.1654 | 1.69109 | 54.66 | 9 | 7.4280 | 0.0661 | 1.69109 | 54.66 |
| 4 | 3.2679 | 0.0341 | 1.60936 | 39.70 | 10 | -2.0712 | 0.0020 | | |
| 5 | 0.2692 | 0.3362* | | | 11 | 1.6893 | 0.0856 | 1.69109 | 54.66 |
| 6 | -0.2813 | 0.0322 | 1.70059 | 30.27 | 12 | -2.0400 | | | |

0.3362* = 0.1700 + 0.1662

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.0012 | 0.00040 | 0.00037 | -0.0033 | -0.0030 | 0.41 | -1.15% |
| h 或 ω % | LA' | $\Delta H'$ | x'_1 | x'_s | $x'_1 - x'_s$ | K'_{T1} | $K'_{10.7}$ |
| 100 | -0.00014 | -0.0017 | -0.014 | -0.0054 | -0.009 | 0.013 | 0.0037 |
| 70 | -0.00074 | -0.0017 | -0.0049 | -0.0015 | -0.0039 | 0.0058 | 0.0017 |



编号: 02-00-072

八片式高斯物镜

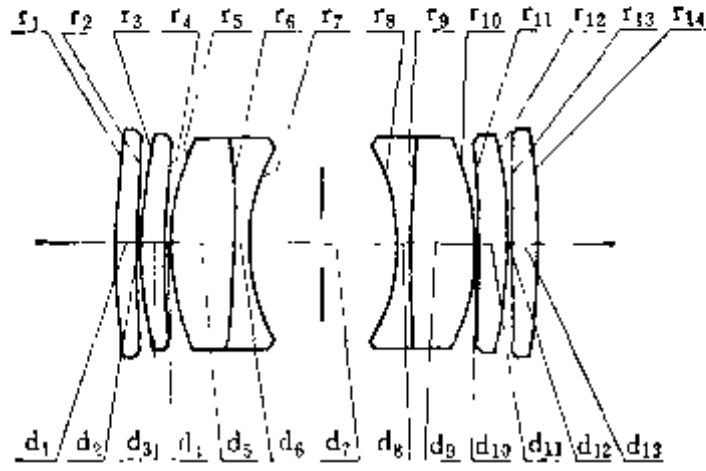
E.F.L=100

B.F.L=48.40

FN₀. =2.5

F.A. = ±10°**

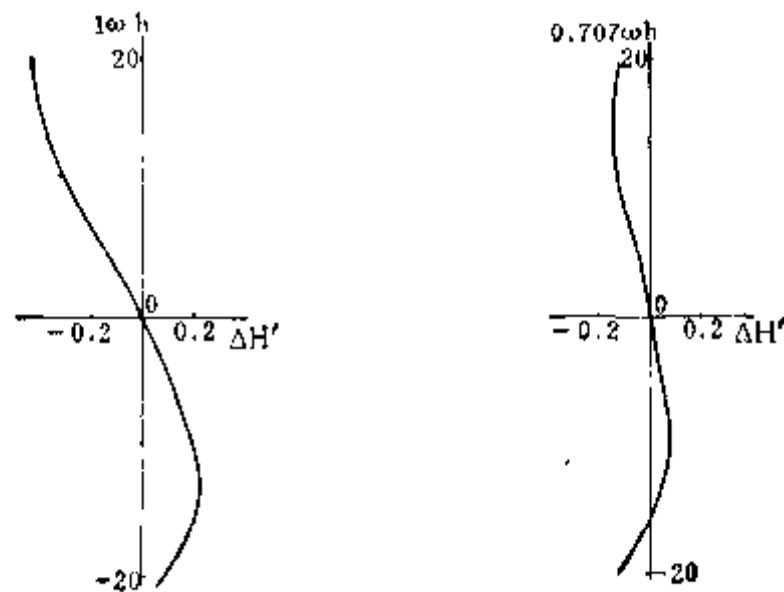
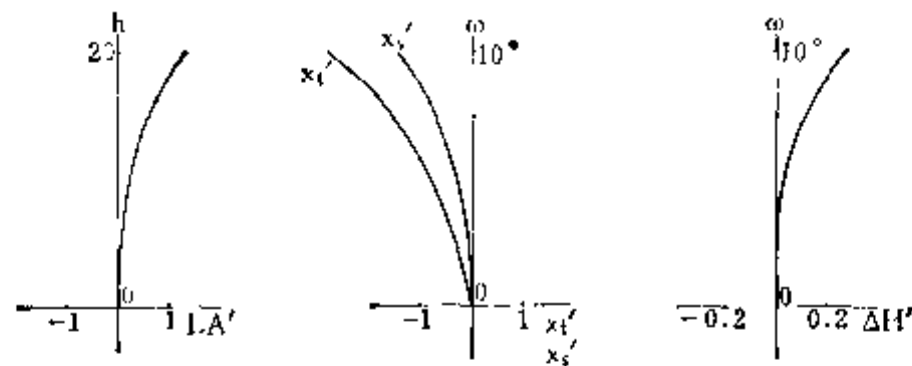
$l_1 = -\infty$



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|----|--------|--------|-------|------|----|---------|-------|-------|------|
| 1 | 155.0 | 4.65 | 1.694 | 54.5 | 8 | -36.6 | 2.25 | 1.704 | 34.7 |
| 2 | 6220.0 | 0.15 | | | 9 | 279.5 | 12.60 | 1.625 | 52.9 |
| 3 | 92.4 | 5.60 | 1.694 | 54.5 | 10 | -46.7 | 0.15 | | |
| 4 | 339.0 | 0.15 | | | 11 | -339.0 | 5.60 | 1.694 | 54.5 |
| 5 | 46.7 | 12.60 | 1.625 | 52.9 | 12 | -92.4 | 0.15 | | |
| 6 | -279.5 | 2.25 | 1.704 | 34.7 | 13 | -6220.0 | 4.65 | 1.694 | 54.5 |
| 7 | 36.6 | 29.86* | | | 14 | -155.0 | | | |

29.86* = 14.93 + 14.93

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1ω) |
|---------|--------------|--------------|--------------|--------------|---------------------|-----------|-------------|
| | 0.082 | -0.021 | -0.015 | 0.060 | 0.10 | 17.19 | 1.63% |
| h 或 ω % | LA' | ΔH' | λ'_t | x'_s | $x'_t - \lambda'_t$ | K'_{f1} | $K'_{f0.7}$ |
| 100 | 1.26 | 0.26 | -2.73 | -1.37 | -1.36 | -0.17 | -0.076 |
| 70 | 0.57 | 0.094 | -1.30 | -0.68 | -0.62 | -0.12 | -0.057 |



编号: 02-00-073

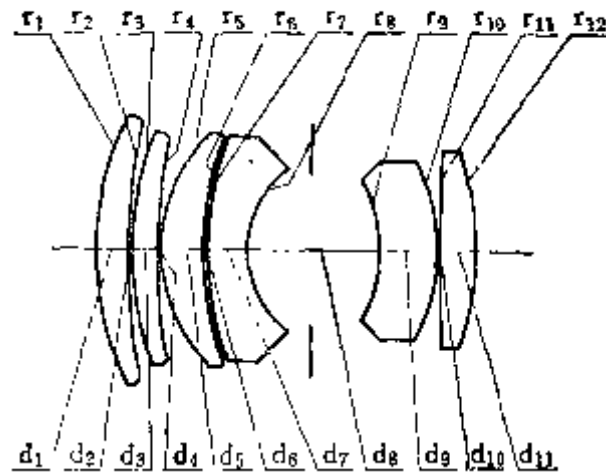
改进的高斯型摄影物镜

E.F.L=1

B.F.L=0.4473

FN₀=2

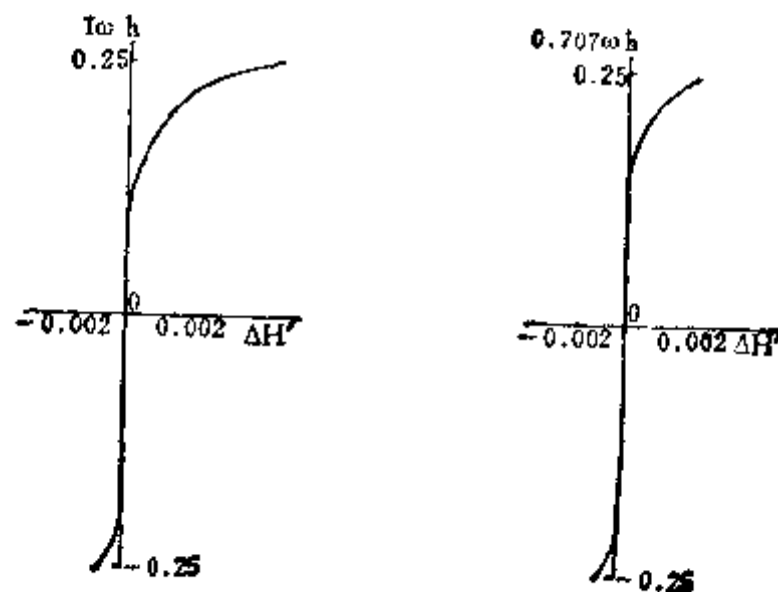
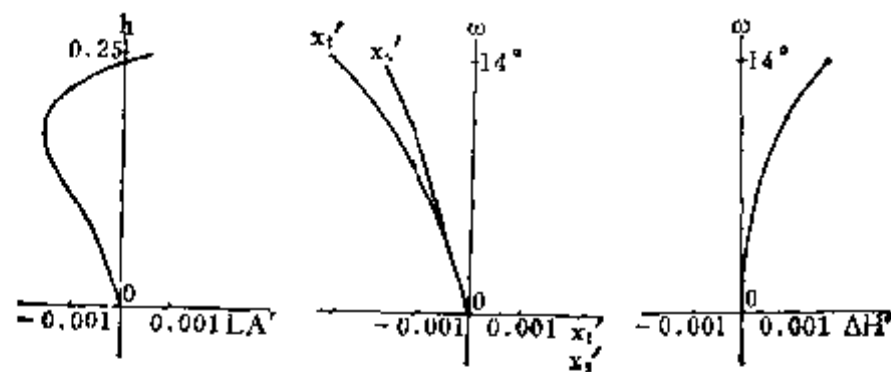
F.A.=±14°



| 序号 | r | d | n _e | v _e | 序号 | r | d | n _e | v _e |
|----|---------|---------|----------------|----------------|----|----------|----------|----------------|----------------|
| 1 | 0.61825 | 0.05712 | 1.62287 | 60.06 | 7 | 0.62712 | 0.07734 | 1.70414 | 29.24 |
| 2 | 1.22468 | 0.00119 | | | 8 | 0.19409 | 0.25226* | | |
| 3 | 0.62269 | 0.03355 | 1.62287 | 60.06 | 9 | -0.27813 | 0.10650 | 1.81262 | 25.28 |
| 4 | 1.12335 | 0.00119 | | | 10 | -0.41918 | 0.00059 | | |
| 5 | 0.30538 | 0.09043 | 1.62287 | 60.06 | 11 | 2.94622 | 0.06188 | 1.62287 | 60.06 |
| 6 | 0.66433 | 0.00119 | | | 12 | -0.52012 | | | |

$$0.25226^* = 0.08000 + 0.17226$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------------------|-----------|-----------------|
| | -0.00077 | -0.00012 | 0.0000063 | -0.00041 | 0.0010 | 0.24 | 0.72% |
| h 或 ω % | LA' | $\Delta H'$ | λ'_1 | λ'_2 | $\lambda'_3 - \lambda'_2$ | K'_{11} | $K'_{10.7}$ |
| 100 | 0.00049 | 0.0017 | -0.0029 | -0.0019 | -0.0010 | 0.0025 | 0.00045 |
| 70 | -0.0016 | 0.00070 | -0.0015 | -0.0013 | -0.00018 | 0.00093 | 0.00011 |



编号: 02-00-074

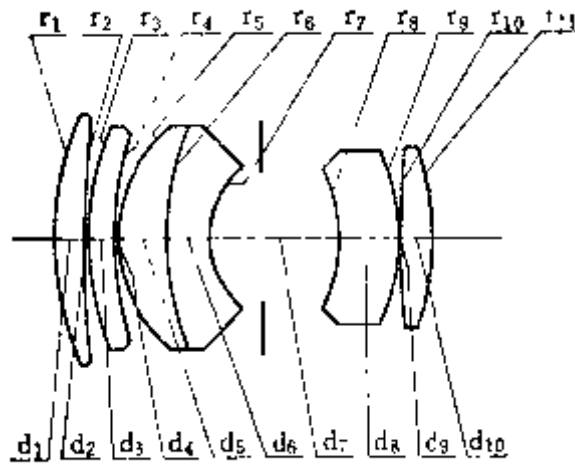
改进的高斯型摄影物镜

E.F.L=1

B.F.L=0.4448

FNo.=2

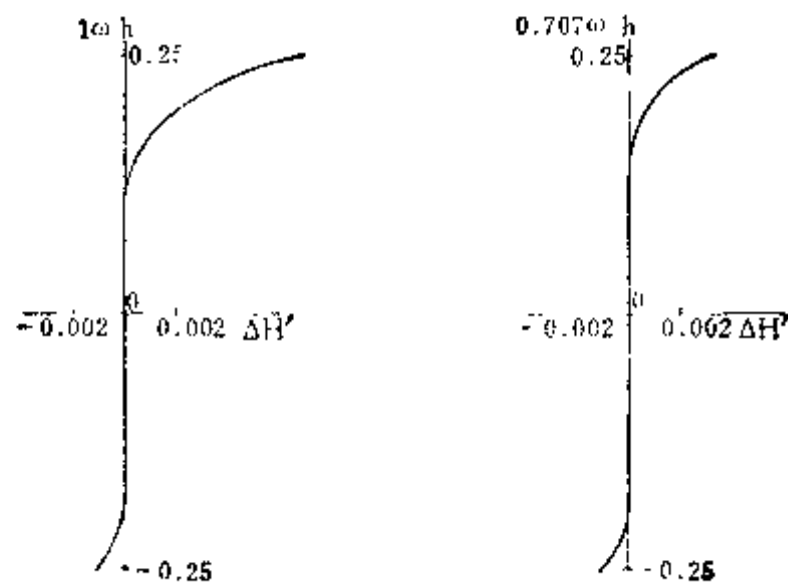
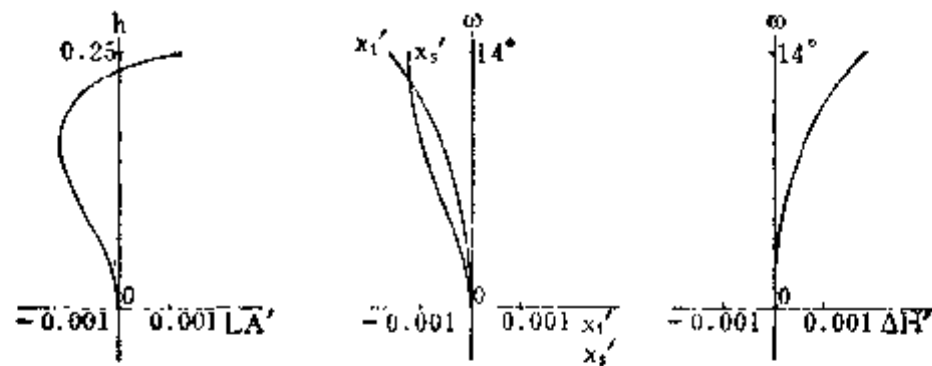
F.A.=±14°



| 序号 | r | d | n_d | v | 序号 | r | d | n_d | v |
|----|---------|---------|---------|-------|----|----------|----------|---------|-------|
| 1 | 0.63752 | 0.05682 | 1.62287 | 60.06 | 7 | 0.19417 | 0.25272* | | |
| 2 | 2.10488 | 0.00118 | | | 8 | -0.29519 | 0.11009 | 1.81262 | 25.28 |
| 3 | 0.66388 | 0.05327 | 1.62287 | 60.06 | 9 | -0.44156 | 0.00059 | | |
| 4 | 0.81496 | 0.00118 | | | 10 | 2.39619 | 0.05682 | 1.62287 | 60.06 |
| 5 | 0.29947 | 0.09233 | 1.62287 | 60.06 | 11 | -0.54814 | | | |
| 6 | 0.63752 | 0.07812 | 1.70414 | 29.84 | | | | | |

$$0.25272^* = 0.08000 + 0.17272$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (%) |
|----------------|--------------|--------------|--------------|--------------|---------------|------------|-------------|
| | -0.00060 | -0.00012 | 0.000074 | -0.00012 | 0.0010 | 0.24 | 0.72% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K_{T1}^2 | $h'_{T0.7}$ |
| 100 | 0.0011 | 0.0017 | -0.0016 | -0.0013 | -0.00023 | 0.0029 | 0.00055 |
| 70 | -0.0011 | 0.00071 | -0.00077 | -0.0010 | 0.00023 | 0.0011 | 0.00015 |



编号: 02-00-075

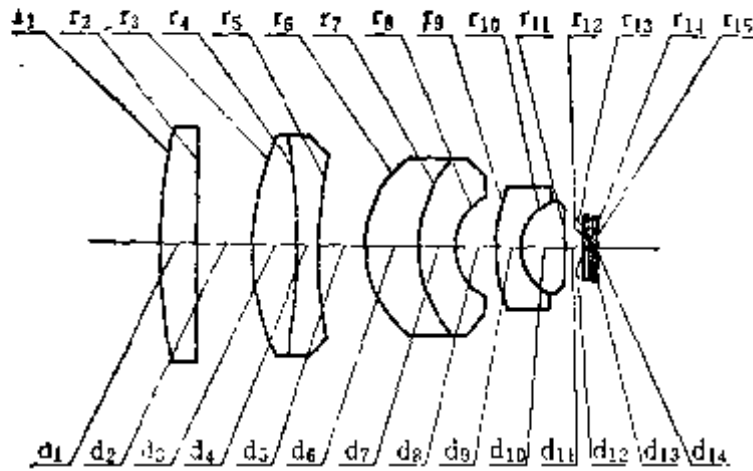
四组元大孔径物镜

E.F.L.=1

B.F.L.=0

FNo.=1.1

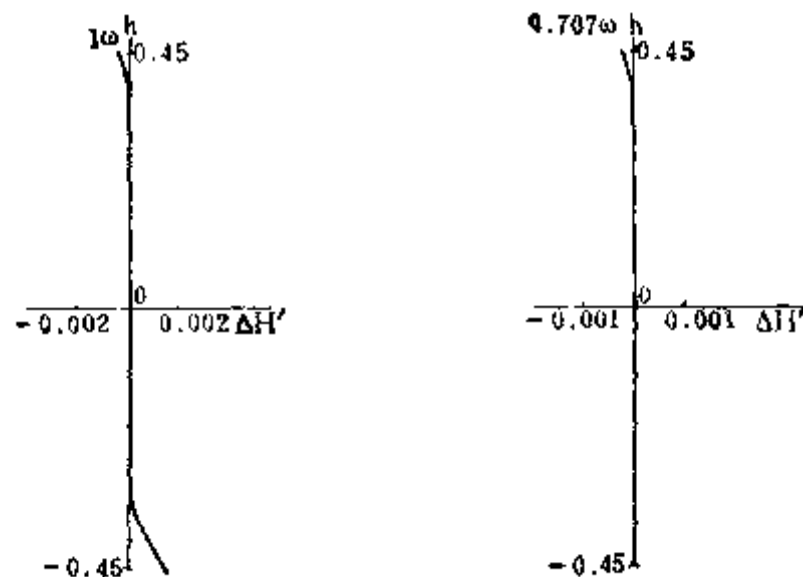
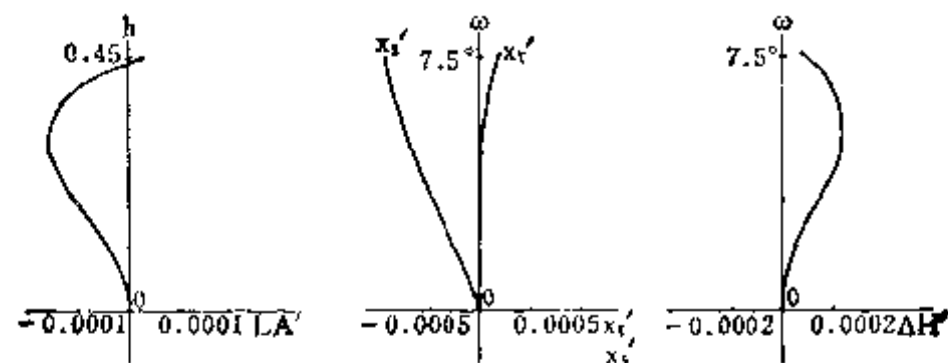
F.A.=±7.5°



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|----|---------|----------|-------|------|----|--------|---------|-------|------|
| 1 | 2.0800 | 0.14200 | 1.721 | 47.7 | 9 | 0.6210 | 0.08200 | 1.592 | 52.9 |
| 2 | 23.6000 | 0.21000 | | | 10 | 0.2035 | 0.17000 | 1.792 | 50.2 |
| 3 | 0.9870 | 0.18200 | 1.721 | 47.7 | 11 | 11.32 | 0.07580 | | |
| 4 | -2.0350 | 0.07800 | 1.813 | 25.3 | 12 | ∞ | 0.02800 | 1.516 | 64.1 |
| 5 | 1.7710 | 0.17800 | | | 13 | ∞ | 0.00536 | | |
| 6 | 0.4350 | 0.19400 | 1.694 | 54.6 | 14 | ∞ | 0.01500 | 1.516 | 64.1 |
| 7 | 0.5410 | 0.14200 | 1.768 | 26.8 | 15 | ∞ | | | |
| 8 | 0.2200 | 0.15000* | | | | | | | |

0.15000* = 0.07500 + 0.07500

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1ω) |
|---------|--------------|--------------|--------------|--------------|---------------------------|-----------|-------------|
| | -0.00025 | -0.000043 | 0.00031 | -0.0010 | 0.0010 | 0.13 | 0.048% |
| h 或 ω % | LA' | ΔH' | λ'_t | λ'_s | $\lambda'_t - \lambda'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.000015 | 0.000063 | 0.00016 | -0.00095 | 0.0011 | 0.00069 | -0.000050 |
| 70 | -0.00016 | 0.00024 | 0.000069 | -0.00071 | 0.00078 | -0.000013 | -0.000046 |



编号: 02-00-077

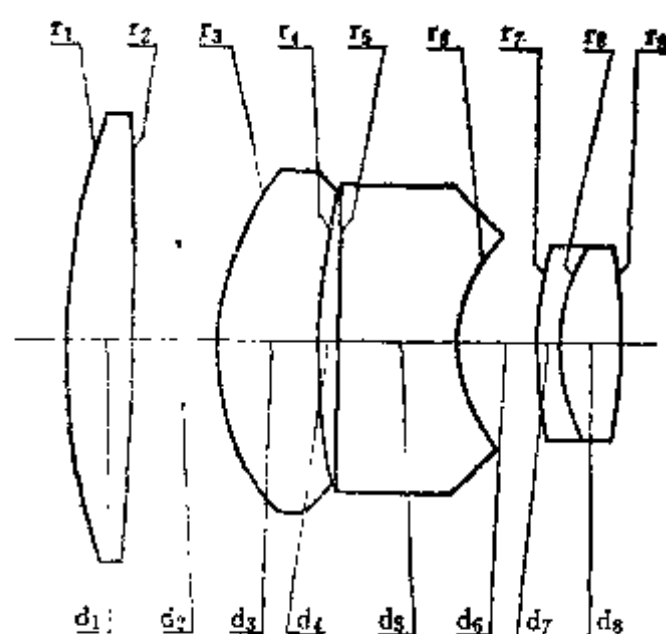
摄影物镜

E.F.L=100

B.F.L=35.30

FNo.=1.2

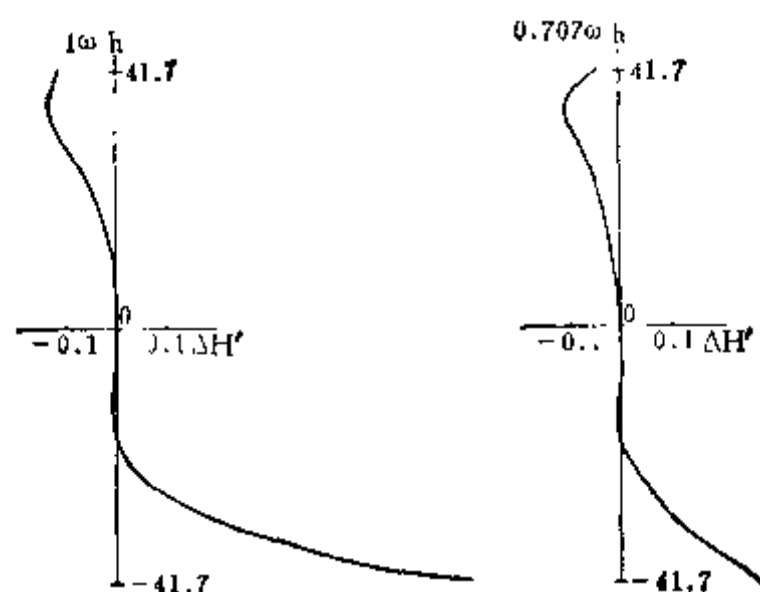
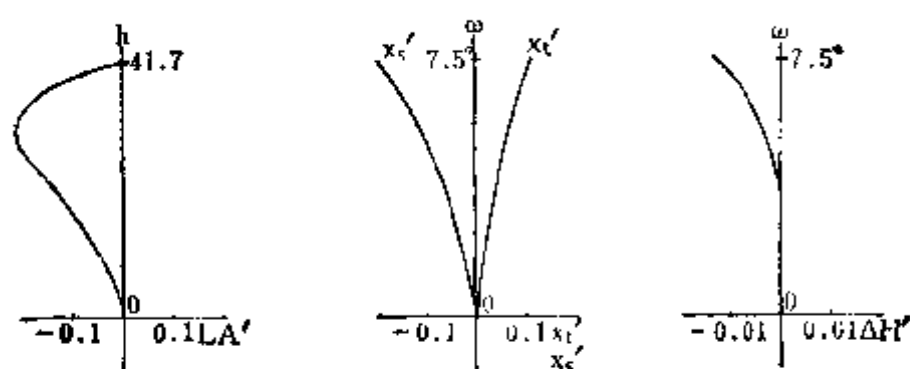
F.A.=±7.5°**



| 序号 | r | d | n_d | v_d | 序号 | r | d | n_d | v_d |
|----|----------|-------|--------|-------|----|--------|--------|--------|-------|
| 1 | 150.70 | 13.47 | 1.6998 | 55.4 | 6 | 32.68 | 15.97* | | |
| 2 | -1226.05 | 17.47 | | | 7 | 84.83 | 4.99 | 1.5198 | 51.9 |
| 3 | 53.74 | 21.71 | 1.6543 | 58.3 | 8 | 42.84 | 12.48 | 1.7919 | 47.2 |
| 4 | 140.32 | 3.24 | | | 9 | -93.01 | | | |
| 5 | ∞ | 24.95 | 1.7918 | 25.9 | | | | | |

15.97* = 7.00 + 8.97

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|--------------------|-----------|------------------|
| | -0.22 | -0.030 | 0.069 | -0.15 | 0.0010 | 13.07 | -0.10% |
| h 或 ω % | LA' | $\Delta H'$ | x_1' | x_2' | $x_1' - \Delta_2'$ | K_{11}' | $K_{10.7}'$ |
| 100 | 0.01 | -0.013 | 0.10 | -0.20 | 0.30 | 0.29 | 0.033 |
| 70 | -0.21 | -0.0019 | 0.066 | -0.11 | 0.17 | 0.11 | 0.0021 |



编号: 02-00-078

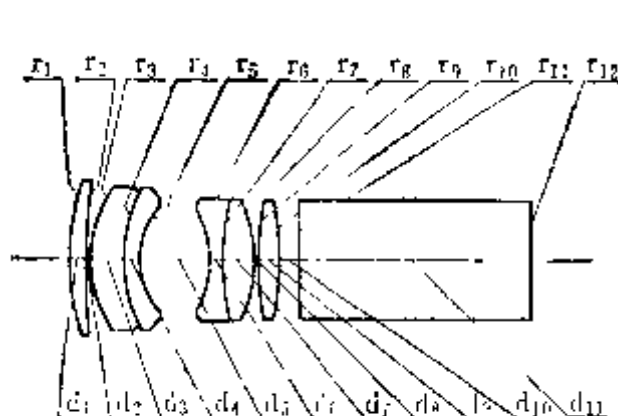
用于彩色摄影的附加物镜

E.F.L = 100

B.F.L = 13.91

FNo. = 1.8

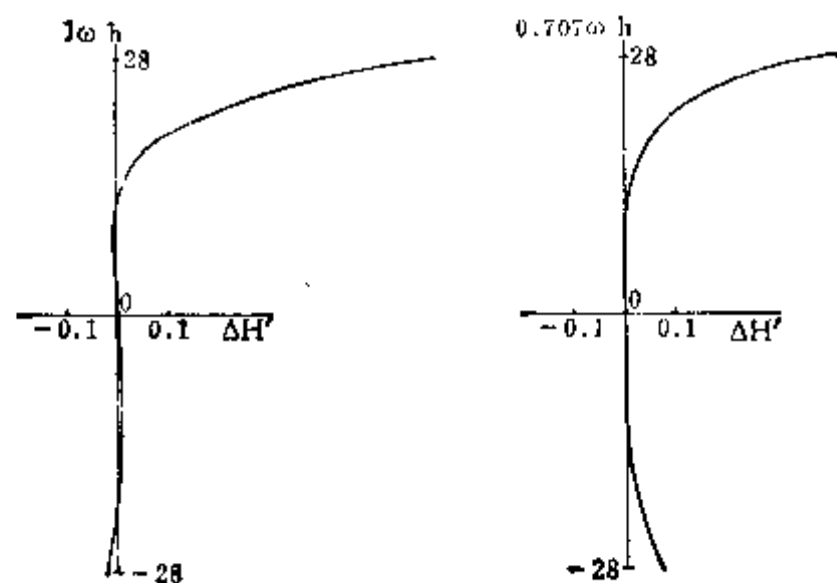
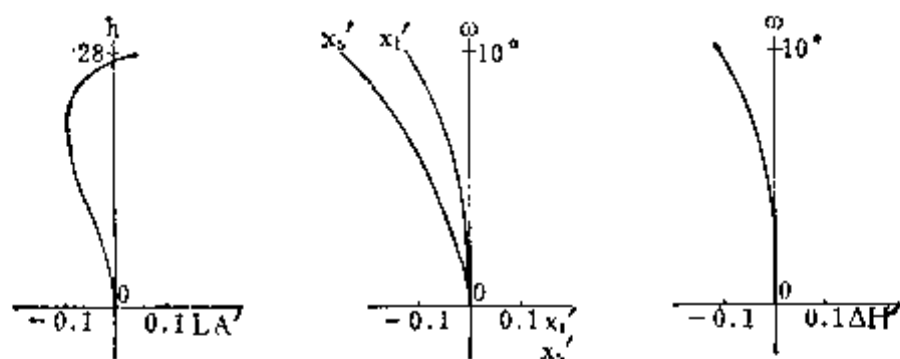
F.A. = $\pm 10^\circ$



| 序号 | r | d | n_d | v_d | 序号 | r | d | n_d | v_d |
|----|--------|--------|-------|-------|----|----------|-------|-------|-------|
| 1 | 94.10 | 7.10 | 1.780 | 37.6 | 7 | 180.80 | 12.15 | 1.716 | 53.7 |
| 2 | 323.00 | 0.30 | | | 8 | -49.30 | 0.30 | | |
| 3 | 49.90 | 12.15 | 1.694 | 54.5 | 9 | 225.20 | 8.45 | 1.732 | 54.5 |
| 4 | 60.35 | 5.80 | 1.652 | 33.6 | 10 | -102.50 | 6.90 | | |
| 5 | 31.55 | 27.20* | | | 11 | ∞ | 91.20 | 1.694 | 54.5 |
| 6 | -37.45 | 5.30 | 1.678 | 32.0 | 12 | ∞ | | | |

27.20* = 13.60 + 13.60

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------------------|-----------|-------------|
| | -0.057 | -0.0022 | 0.013 | -0.056 | -0.063 | 17.19 | -0.68% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | λ'_s | $\lambda'_t - \lambda'_s$ | K'_{F1} | $K'_{F0.7}$ |
| 100 | 0.022 | -0.11 | -0.12 | -0.25 | 0.13 | 0.30 | 0.038 |
| 70 | -0.10 | -0.041 | -0.054 | -0.132 | 0.078 | 0.25 | 0.037 |



编号: 02-00-079

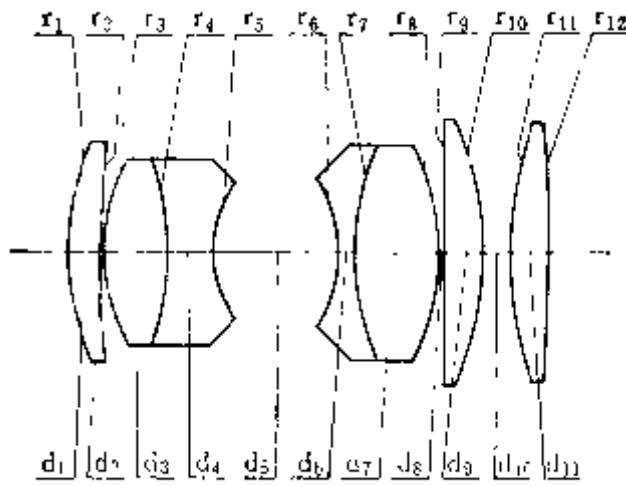
远 焦 点 物 镜

E.F.L=1

B.F.L=0.424

FN₀. =2

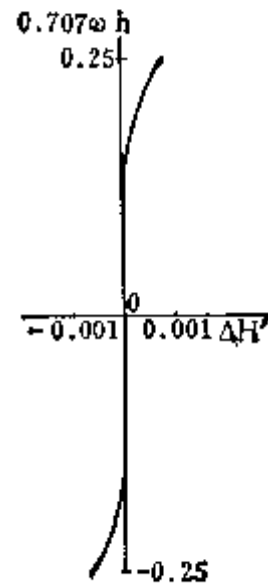
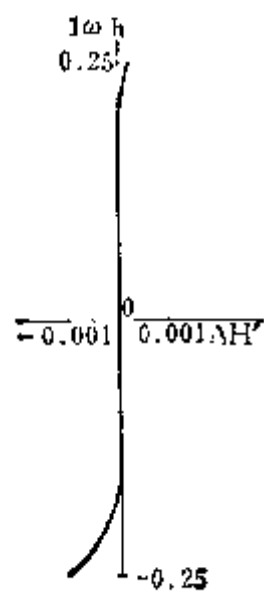
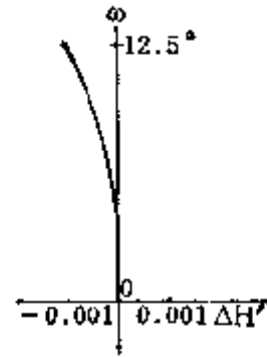
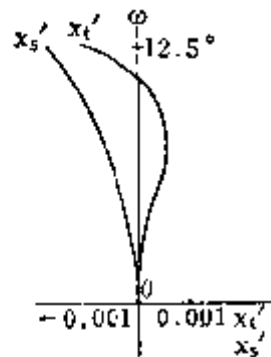
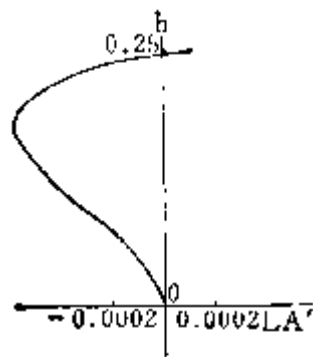
F.A. = ± 12.5° **



| 序号 | r | d | n _d | v | 序号 | r | d | n _d | v |
|----|---------|---------|----------------|------|----|---------|--------|----------------|------|
| 1 | 0.6162 | 0.0867 | 1.691 | 54.8 | 7 | 0.7178 | 0.2070 | 1.691 | 54.8 |
| 2 | 2.7042 | 0.0010 | | | 8 | -0.5333 | 0.0010 | | |
| 3 | 0.4829 | 0.1510 | 1.691 | 54.8 | 9 | -7.1736 | 0.0900 | 1.651 | 58.6 |
| 4 | -0.8083 | 0.1068 | 1.700 | 41.2 | 10 | -0.7853 | 0.0690 | | |
| 5 | 0.2576 | 0.3124* | | | 11 | 0.9960 | 0.0930 | 1.651 | 58.6 |
| 6 | -0.2992 | 0.0400 | 1.648 | 33.8 | 12 | -3.3146 | | | |

$$0.3124^* = 0.0500 + 0.2624$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP (1ω) |
|---------|--------------|--------------|------------------|------------------|-------------------------------------|-----------------|-------------------|
| | -0.00027 | 0.000013 | 0.00025 | -0.00043 | -0.00015 | 0.21 | -0.49% |
| h 或 ω % | LA' | ΔH' | x _t ' | x _s ' | x _t ' - x _s ' | K _{T1} | ΔT _{0.7} |
| 100 | 0.00011 | -0.0010 | -0.0012 | -0.0018 | 0.00070 | -0.00047 | -0.00014 |
| 70 | -0.00059 | -0.00034 | 0.00056 | -0.0008 | 0.00136 | 0.000029 | 0.000035 |

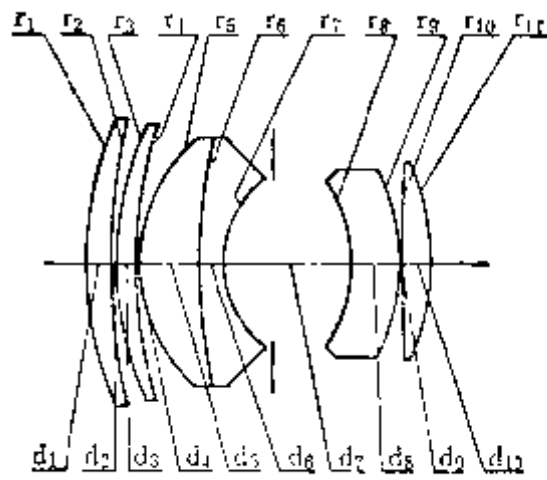


改进的高斯型摄影物镜

E.F.L=1

B.F.L=0.4934

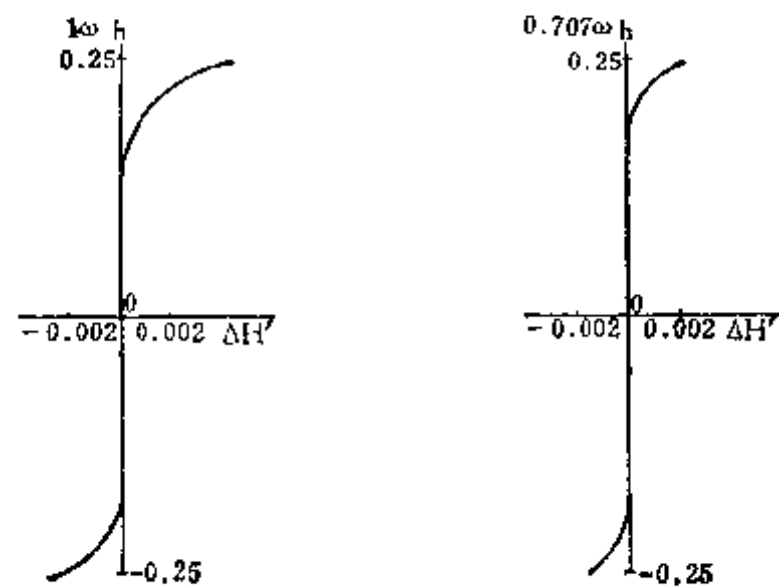
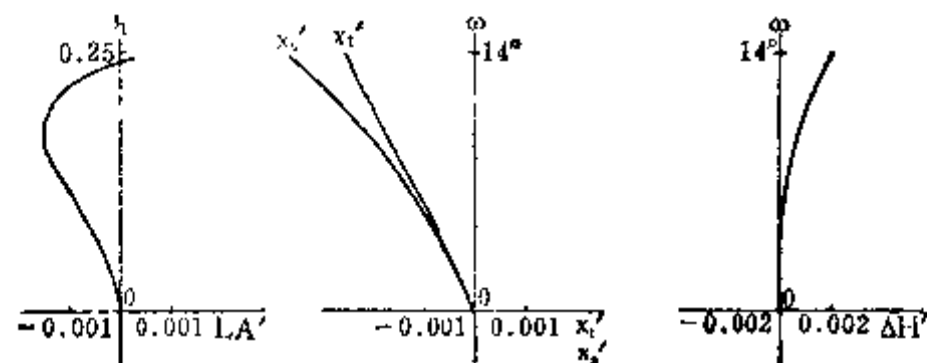
FNo.=2

F.A.= $\pm 14^\circ$ 

| 序号 | r | d | n_d | v_d | 序号 | r | d | n_d | v_d |
|----|---------|---------|---------|-------|----|----------|----------|---------|-------|
| 1 | 0.74046 | 0.05378 | 1.62041 | 60.29 | 7 | 0.21179 | 0.25122* | | |
| 2 | 1.70593 | 0.00119 | | | 8 | -0.31907 | 0.10120 | 1.78472 | 25.51 |
| 3 | 0.68906 | 0.04167 | 1.62041 | 60.29 | 9 | -0.45729 | 0.00060 | | |
| 4 | 1.07103 | 0.00119 | | | 10 | 3.16788 | 0.05715 | 1.62041 | 60.29 |
| 5 | 0.33974 | 0.11906 | 1.69100 | 51.80 | 11 | -0.60101 | | | |
| 6 | 1.27493 | 0.05001 | 1.65096 | 32.85 | | | | | |

$$0.25122^* = 0.10000 + 0.15122$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|----------|-----------------|
| | -0.00070 | -0.00018 | 0.000046 | -0.00070 | 0.0011 | 0.24 | 0.84% |
| h 或 ω % | LA' | $\Delta H'$ | x_1' | x_2' | $x_1' - x_2'$ | K_{T1} | $K_{F0.7}$ |
| 100 | 0.00025 | 0.0020 | -0.0025 | -0.0036 | 0.0011 | 0.00088 | 0.000073 |
| 70 | -0.0015 | 0.00078 | -0.0018 | -0.0022 | 0.00045 | 0.00010 | -0.000078 |



编号: 02-00-082

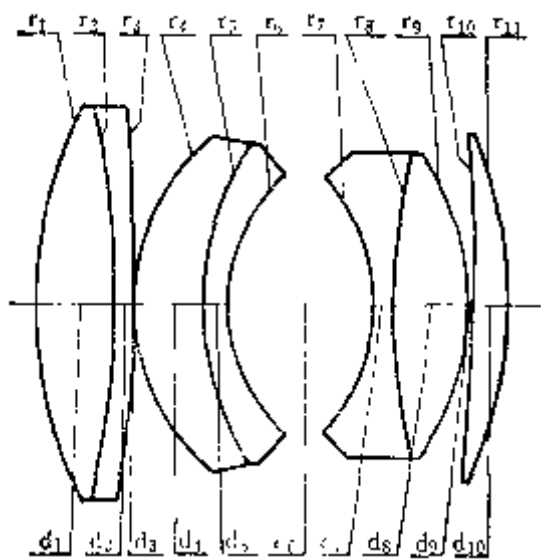
摄影物镜

E.F.L=1

B.F.L=0.684

FNo.=2

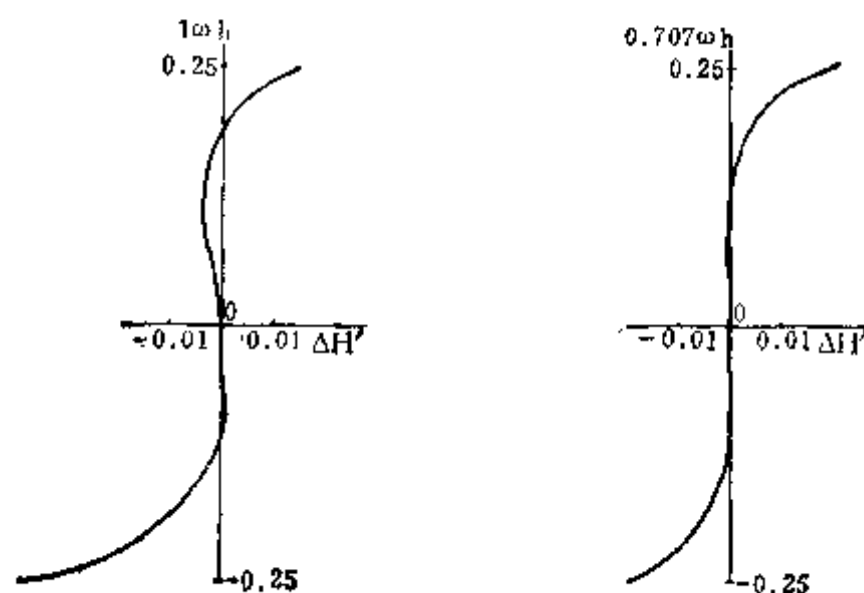
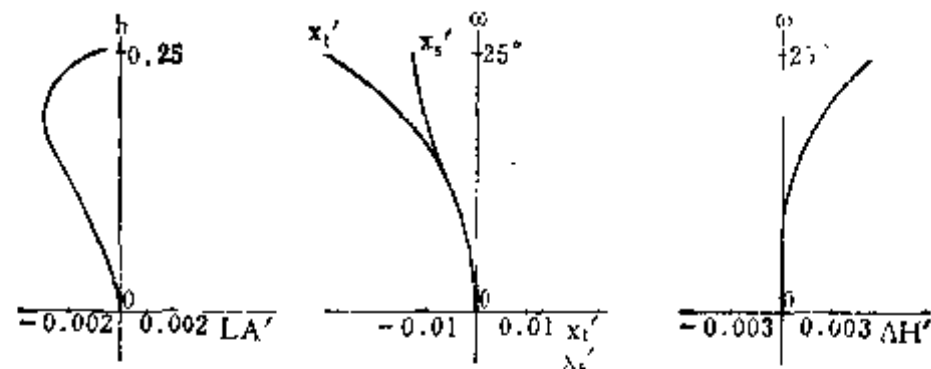
F.A.=±25°



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|----------|--------|--------|------|----|----------|-------|--------|------|
| 1 | 0.6886 | 0.108 | 1.5338 | 55.4 | 7 | -0.2823 | 0.030 | 1.5673 | 12.8 |
| 2 | -1.2296 | 0.030 | 1.6727 | 32.2 | 8 | 0.8853 | 0.108 | 1.6204 | 60.3 |
| 3 | -19.5650 | 0.002 | | | 9 | -0.3727 | 0.002 | | |
| 4 | 0.3325 | 0.098 | 1.6700 | 47.2 | 10 | -19.5650 | 0.049 | 1.6074 | 53.7 |
| 5 | 0.4623 | 0.030 | 1.6645 | 35.9 | 11 | -0.6709 | | | |
| 6 | 0.2351 | 0.207* | | | | | | | |

0.207* = 0.091 + 0.116

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QP (1%) |
|--------------|--------------|--------------|--------------|--------------|---------------------------|------------|--------------|
| | -0.0012 | -0.003048 | 0.00039 | -0.0031 | 0.0020 | 0.16 | 1.11% |
| h 或 ω | LA' | $\Delta H'$ | λ'_t | λ'_s | $\lambda'_t - \lambda'_s$ | K_{F1}^h | $K_{F0.7}^h$ |
| 100 | -0.00073 | 0.0052 | -0.031 | -0.013 | -0.018 | -0.010 | -0.0044 |
| 70 | -0.0030 | 0.0016 | -0.011 | -0.0095 | -0.0015 | 0.0010 | -0.00067 |



编号: 02-00-083

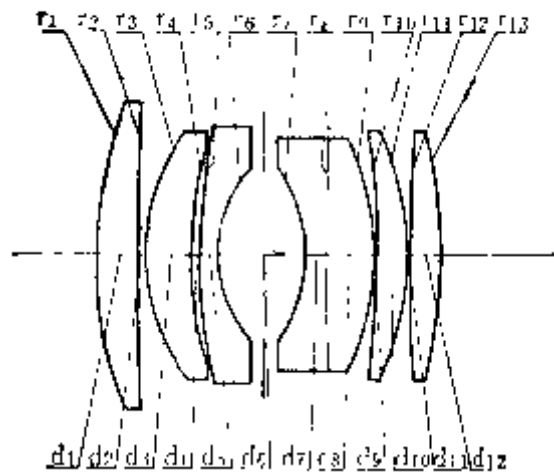
摄影物镜

E.F.L=1

B.F.L=0.734

FN₀ = 1.4

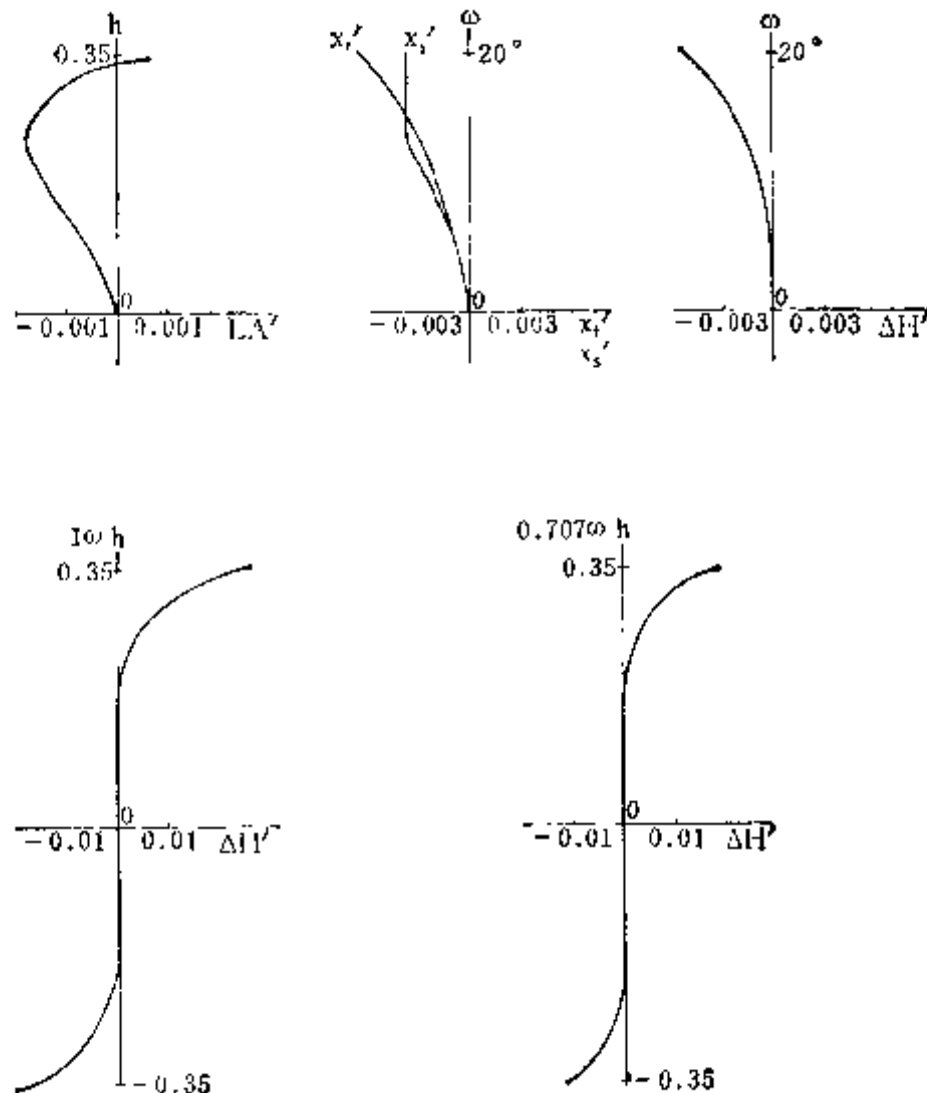
F.A. = ± 20°



| 序号 | r | d | n _e | v _e | 序号 | r | d | n _e | v _e |
|----|---------|---------|----------------|----------------|----|---------|--------|----------------|----------------|
| 1 | 1.1331 | 0.1048 | 1.81500 | 45.2 | 8 | 4.9204 | 0.1237 | 1.80040 | 42.7 |
| 2 | 12.0000 | 0.0113 | | | 9 | -0.7193 | 0.0019 | | |
| 3 | 0.5136 | 0.1312 | 1.69400 | 54.6 | 10 | -2.5179 | 0.0810 | 1.80040 | 42.7 |
| 4 | 1.0375 | 0.0160 | | | 11 | -0.7525 | 0.0019 | | |
| 5 | 1.6920 | 0.0451 | 1.63003 | 35.4 | 12 | 3.9626 | 0.0810 | 1.71615 | 53.7 |
| 6 | 0.3459 | 0.2286* | | | 13 | -1.2605 | | | |
| 7 | -0.3895 | 0.0571 | 1.79180 | 25.9 | | | | | |

$$0.2286^* = 0.1100 + 0.1186$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | IH | QP (1%) |
|---------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | -0.0019 | 0.000085 | 0.00037 | -0.0029 | -0.0037 | 0.36 | -1.57% |
| h 或 ω % | $\Delta A'$ | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{f1} | $K'_{f0.7}$ |
| 100 | 0.00064 | -0.0057 | -0.0065 | -0.0039 | -0.0026 | 0.0039 | 0.00049 |
| 70 | -0.0018 | -0.0020 | -0.0034 | -0.0038 | 0.00047 | 0.0028 | 0.00048 |



编号: 02-00-084

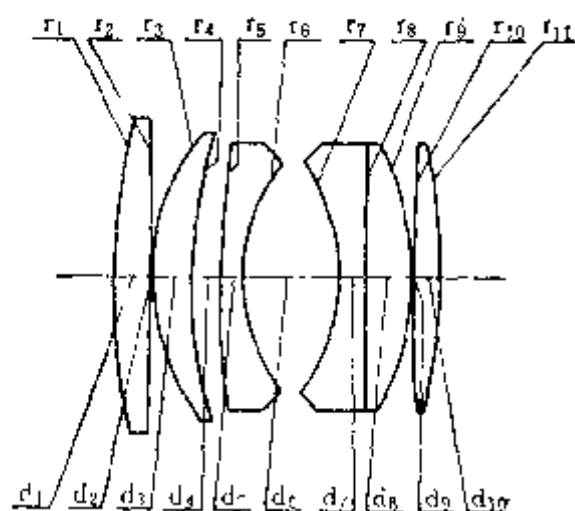
应用高折射率玻璃的摄影物镜

E.F.L = 100

B.F.L = 71.48

FN₀ = 1.7

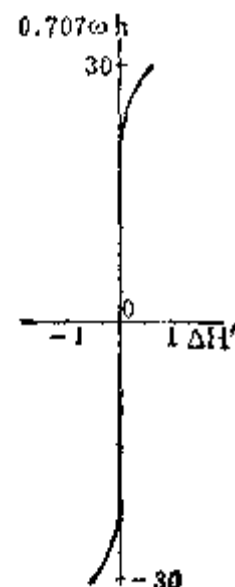
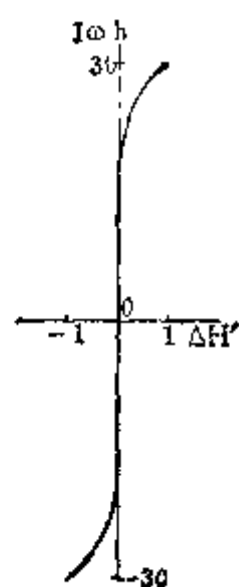
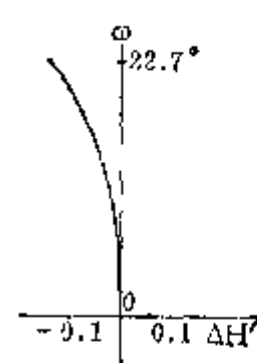
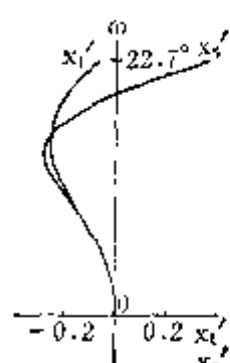
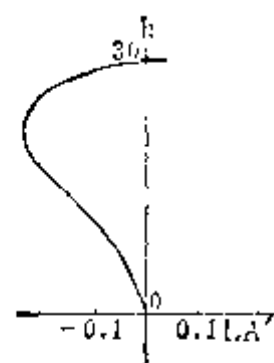
F.A. = ± 22.7°



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|----|----------|--------|---------|------|----|---------|------|---------|------|
| 1 | 139.28 | 6.99 | 1.81600 | 16.8 | 7 | -38.37 | 4.82 | 1.86680 | 33.1 |
| 2 | -6328.50 | 0.19 | | | 8 | 728.12 | 9.01 | 1.81600 | 16.8 |
| 3 | 44.89 | 7.99 | 1.81660 | 16.8 | 9 | -52.83 | 0.19 | | |
| 4 | 94.93 | 5.17 | | | 10 | 460.21 | 5.53 | 1.81600 | 16.8 |
| 5 | 205.55 | 4.73 | 1.72825 | 28.3 | 11 | -109.11 | | | |
| 6 | 34.83 | 18.98* | | | | | | | |

18.98* = 9.98 + 9.00

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (Jω) |
|---------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | -0.15 | -0.046 | 0.021 | -0.22 | -0.045 | 40.97 | -0.35% |
| h 或 ω % | LA' | ΔH' | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{T1} | $K'_{10.7}$ |
| 100 | 0.026 | -0.14 | -0.070 | 0.360 | -0.430 | -0.10 | 0.013 |
| 70 | -0.24 | -0.045 | -0.260 | -0.268 | 0.0080 | 0.0077 | -0.020 |



编号: 02-00-085

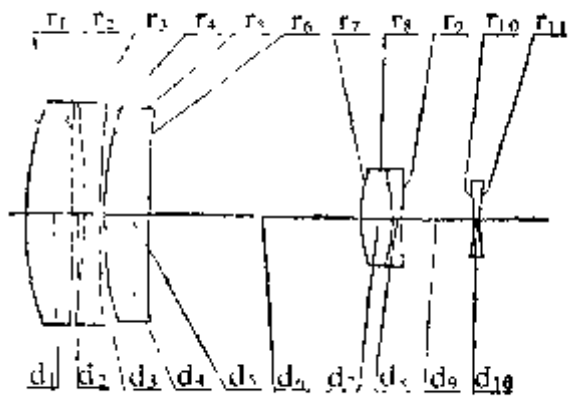
珀 兹 伐 型 物 镜

E.F.L = 100

B.F.L = 5.48

FNo. = 1.7

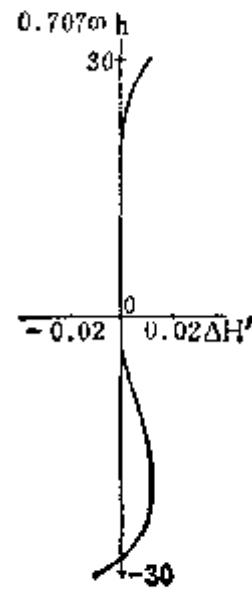
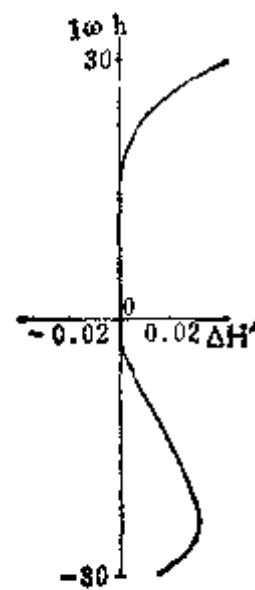
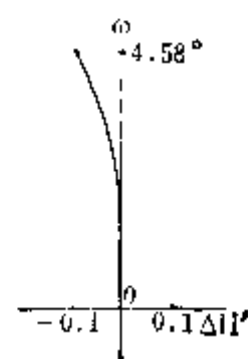
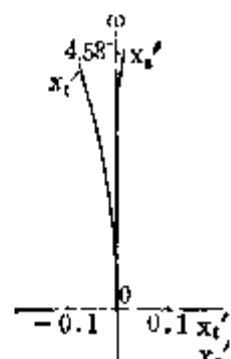
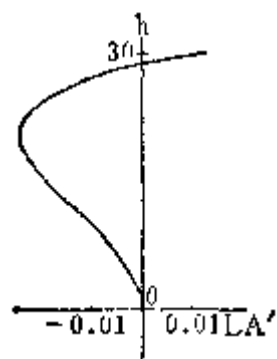
F.A. = $\pm 4.58'$ **



| 序号 | r | d | n_d | v_d | 序号 | r | d | n_d | v_d |
|----|---------|--------|-------|-------|----|--------|-------|-------|-------|
| 1 | 100.20 | 13.40 | 1.605 | 60.4 | 7 | 35.65 | 10.30 | 1.625 | 56.6 |
| 2 | 4070.00 | 4.26 | | | 8 | -57.70 | 2.71 | 1.702 | 38.3 |
| 3 | -196.20 | 4.57 | 1.792 | 25.9 | 9 | 201.50 | 21.80 | | |
| 4 | 498.50 | 1.30 | | | 10 | -72.20 | 1.55 | 1.813 | 25.2 |
| 5 | 112.00 | 13.70 | 1.625 | 56.6 | 11 | 64.70 | | | |
| 6 | 3190.00 | 80.50* | | | | | | | |

80.50* = 40.00 + 40.50

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HJ | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------|----------|------------|
| | -0.017 | -0.00022 | -0.0073 | 0.0059 | -0.051 | 8 | -1.12% |
| h 或 ω % | LA' | $\Delta H'$ | x_t | x_s' | $x_t' - x_s'$ | K_{F1} | $K_{F0.7}$ |
| 100 | 0.012 | -0.090 | -0.082 | 0.0013 | -0.081 | 0.023 | 0.013 |
| 70 | -0.024 | -0.031 | -0.042 | -0.0015 | -0.041 | 0.0010 | 0.0028 |



编号: 02-00-086

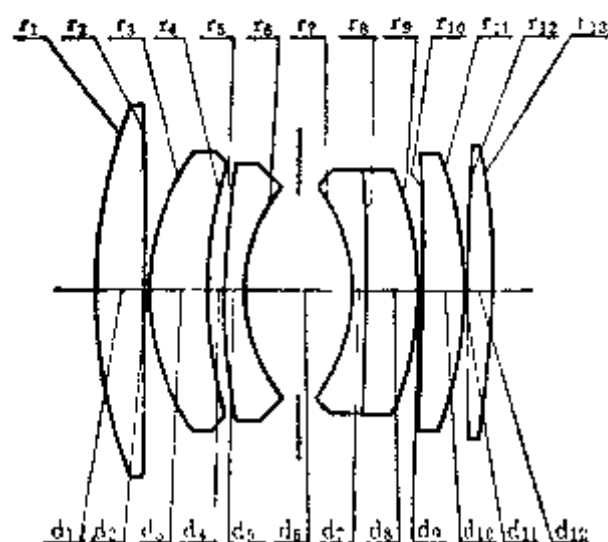
高斯型摄影物镜

E. F. L = 1

B. F. L = 0.6959

FNo. = 1.4

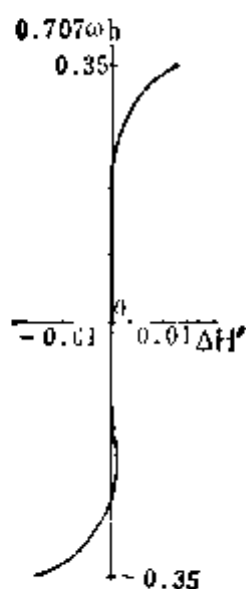
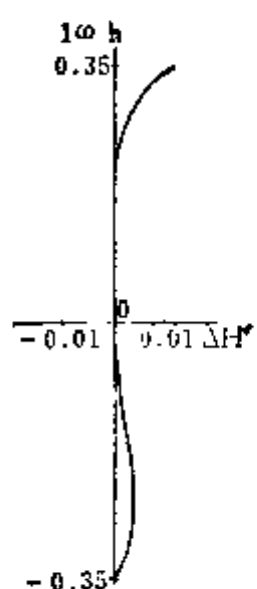
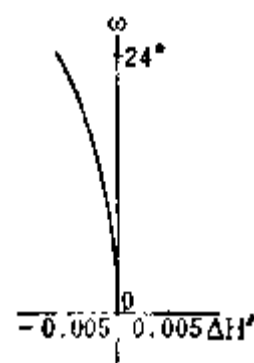
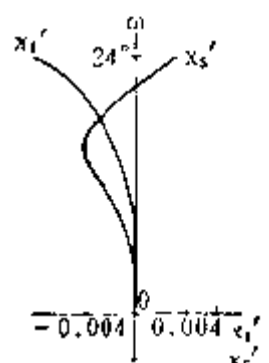
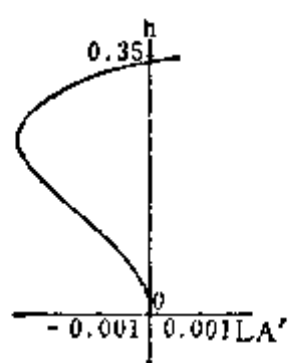
F. A. = $\pm 24^\circ$



| 序号 | r | d | n_e | v_e | 序号 | r | d | n_e | v_e |
|----|-----------|---------|---------|-------|----|-----------|--------|---------|-------|
| 1 | 1.15720 | 0.1044 | 1.72055 | 47.69 | 8 | -7.84738 | 0.1149 | 1.78868 | 43.62 |
| 2 | -76.27345 | 0.0019 | | | 9 | -0.57576 | 0.0010 | | |
| 3 | 0.51319 | 0.1369 | 1.78868 | 43.62 | 10 | -12.43738 | 0.0929 | 1.74795 | 44.49 |
| 4 | 0.98070 | 0.0306 | | | 11 | -0.73012 | 0.0010 | | |
| 5 | 1.75657 | 0.0440 | 1.72311 | 29.30 | 12 | 9.06032 | 0.0565 | 1.74795 | 44.49 |
| 6 | 0.35550 | 0.2346* | | | 13 | -1.73148 | | | |
| 7 | -0.36599 | 0.0287 | 1.79180 | 25.90 | | | | | |

$$0.2346^* = 0.1200 + 0.1146$$

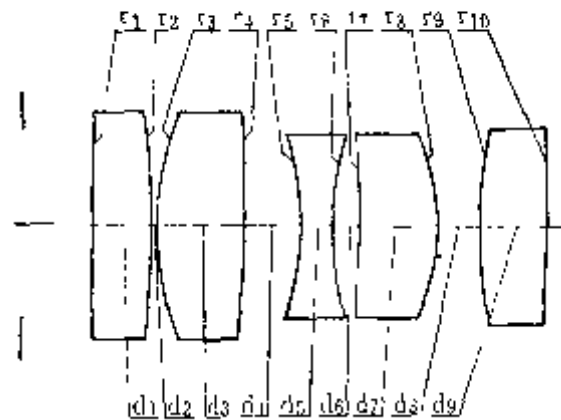
| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.0025 | 0.00042 | 0.0010 | -0.0048 | -0.0044 | 0.14 | -1.37% |
| h 或 ω % | LA' | $\Delta H'$ | x_1' | x_2' | $x_1' - x_2'$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.00053 | -0.0061 | -0.0078 | 0.0031 | -0.011 | 0.0050 | 0.0019 |
| 70 | -0.0025 | -0.0025 | -0.0020 | -0.0040 | 0.0020 | -0.0019 | 0.00062 |



编号: 02-00-087

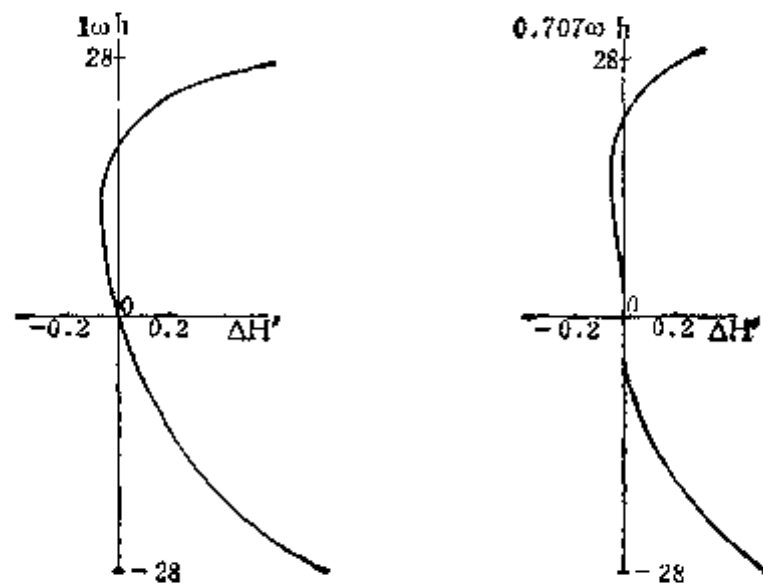
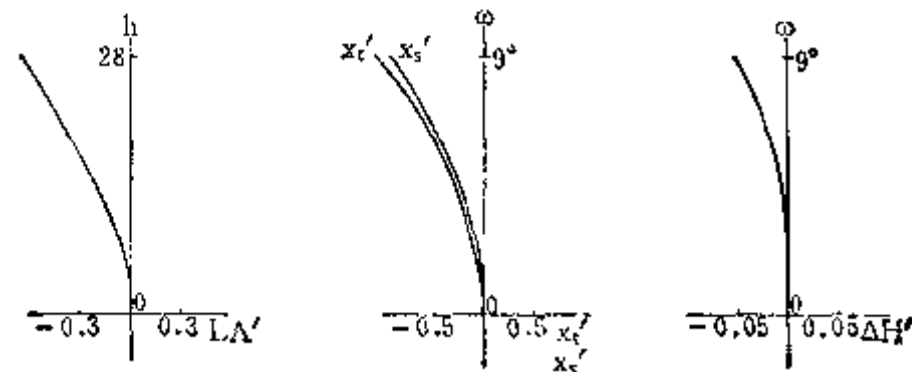
用于摄影、电影摄影和放映的物镜

E. F. L = 100 B. F. L = 45.26 FNo. = 1.8 F. A. = $\pm 9^{\circ}$ ** $L'_{p1} = -18.9$



| 序号 | r | d | n_d | v | 序号 | r | d | n_d | v |
|----|----------|------|-------|-----|----|---------|------|-------|-----|
| 1 | ∞ | 15.1 | 1.62 | 58 | 6 | 95.61 | 7.5 | | |
| 2 | -230.34 | 1.5 | | | 7 | -159.36 | 19.6 | 1.66 | 57 |
| 3 | 81.00 | 23.4 | 1.70 | 56 | 8 | -62.21 | 11.7 | | |
| 4 | -368.11 | 14.6 | | | 9 | 129.61 | 17.7 | 1.71 | 54 |
| 5 | -82.12 | 8.3 | 1.76 | 28 | 10 | -301.34 | | | |

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QT (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.15 | 0.016 | -0.016 | -0.13 | -0.030 | 16.20 | -0.32% |
| n 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | k'_{T1} | $k'_{T0.7}$ |
| 100 | -0.61 | -0.052 | -1.12 | -0.93 | -0.19 | 0.72 | 0.20 |
| 70 | -0.41 | -0.019 | -0.57 | -0.47 | -0.10 | 0.40 | 0.10 |



编号: 02-00-090

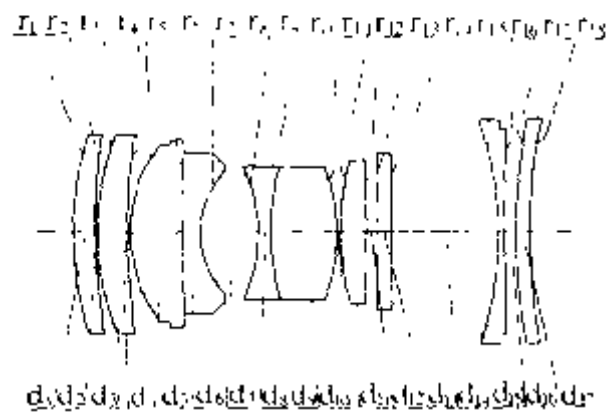
改进的高斯型物镜

E. F. L = 101

B. F. L = 1.04

FN₀ = 1.7

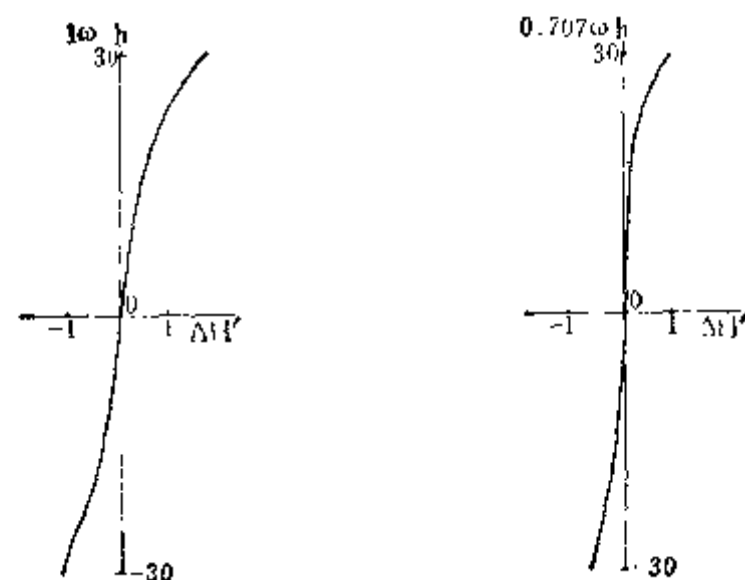
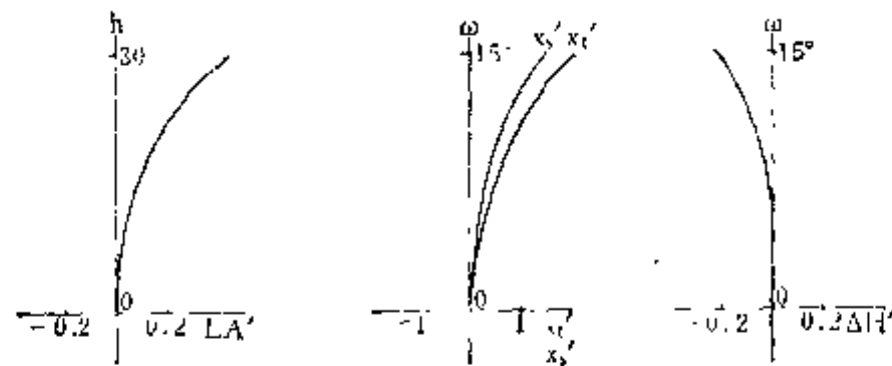
F. A. = ± 15°



| 序号 | r | d | n _e | v _e | 序号 | r | d | n _e | v _e |
|----|--------|--------|----------------|----------------|----|---------|-------|----------------|----------------|
| 1 | 98.26 | 6.60 | 1.62360.1 | | 10 | -52.61 | 0.09 | | |
| 2 | 223.10 | 0.09 | | | 11 | 80.31 | 8.25 | 1.67346.8 | |
| 3 | 80.61 | 9.45 | 1.62360.1 | | 12 | -818.00 | 3.00 | | |
| 4 | 268.10 | 0.36 | | | 13 | ∞ | 4.50 | 1.54259.4 | |
| 5 | 41.82 | 6.06 | 1.69454.5 | | 14 | ∞ | 32.00 | | |
| 6 | 929.50 | 5.55 | 1.81325.3 | | 15 | -102.50 | 1.80 | 1.62466.1 | |
| 7 | 26.72 | 17.26* | | | 16 | 403.70 | 3.00 | | |
| 8 | -47.48 | 3.75 | 1.67832.0 | | 17 | 185.00 | 4.50 | 1.51060.9 | |
| 9 | 76.08 | 20.86 | 1.69454.5 | | 18 | 180.00 | | | |

17.26* = 9.00 + 8.26

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | 0.044 | -0.033 | 0.096 | 0.078 | -0.036 | 27 | -0.92% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | k'_{L1} | $k'_{T0.7}$ |
| 100 | 0.46 | -0.24 | 2.04 | 1.49 | 0.55 | 0.20 | 0.0015 |
| 70 | 0.17 | -0.034 | 1.04 | 0.61 | 0.43 | 0.16 | -0.0044 |



编号: 02-00-091

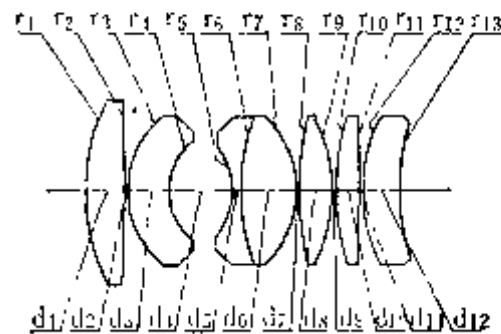
放 映 物 镜

E. F. L = 1

B. F. L = 0.5193

FNo. = 1.7**

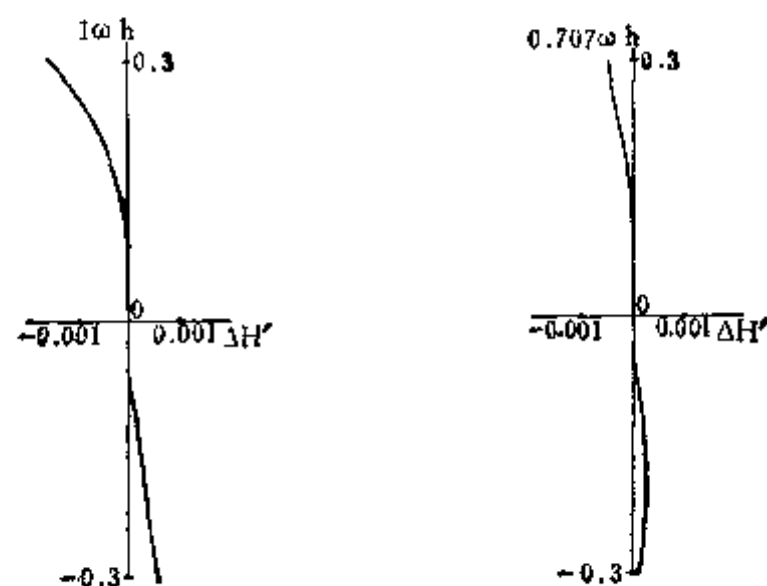
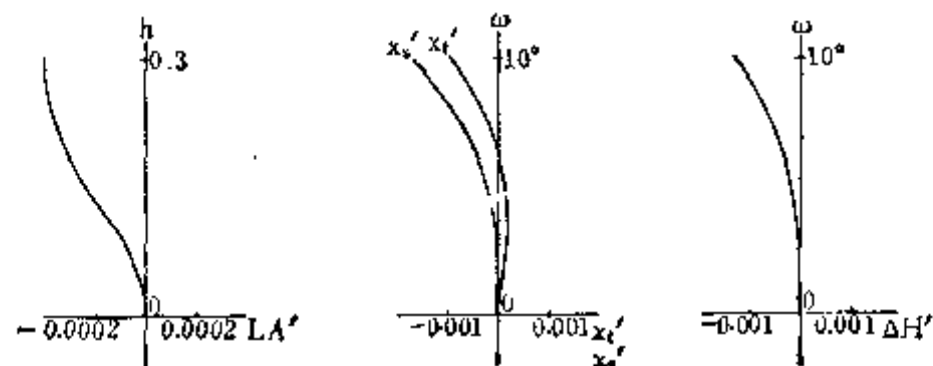
F. A. = $\pm 10^\circ$



| 序号 | r | d | n_e | v_e | 序号 | r | d | n_e | v_e |
|----|-----------|----------|---------|-------|----|-----------|---------|---------|-------|
| 1 | 1.57124 | 0.24880 | 1.64304 | 59.86 | 8 | 3.51792 | 0.21986 | 1.64304 | 59.86 |
| 2 | -14.72886 | 0.00254 | | | 9 | -1.06540 | 0.00508 | | |
| 3 | 0.61653 | 0.27369 | 1.81262 | 25.28 | 10 | 1.66467 | 0.15741 | 1.64304 | 59.86 |
| 4 | 0.39188 | 0.42957* | | | 11 | -30.24374 | 0.02510 | | |
| 5 | -0.43333 | 0.05332 | 1.81262 | 25.28 | 12 | 1.01310 | 0.23865 | 1.64304 | 59.86 |
| 6 | 1.41053 | 0.37321 | 1.64304 | 59.86 | 13 | 1.46232 | | | |
| 7 | -0.71727 | 0.01676 | | | | | | | |

$$0.42957^* = 0.21000 + 0.21957$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.00017 | 0.000039 | 0.00018 | -0.00047 | -0.00082 | 0.17 | -0.75% |
| h 或 ω % | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | -0.00041 | -0.0013 | -0.0010 | -0.0017 | 0.00071 | -0.00058 | -0.00017 |
| 70 | -0.00035 | -0.00043 | -0.00011 | -0.00084 | 0.00073 | -0.00015 | -0.000027 |



编号: 02-00-093

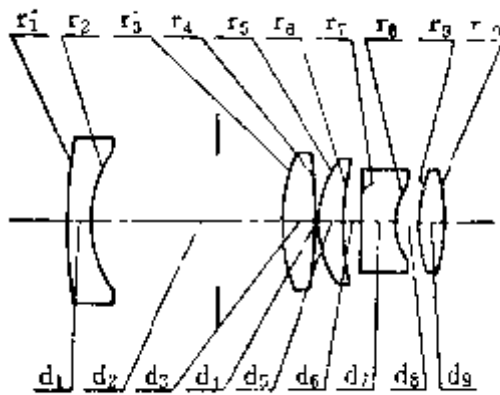
大孔径摄影或电影摄影物镜

E. F. L = 1

B. F. L = 0.7577

FNo. = 1.8

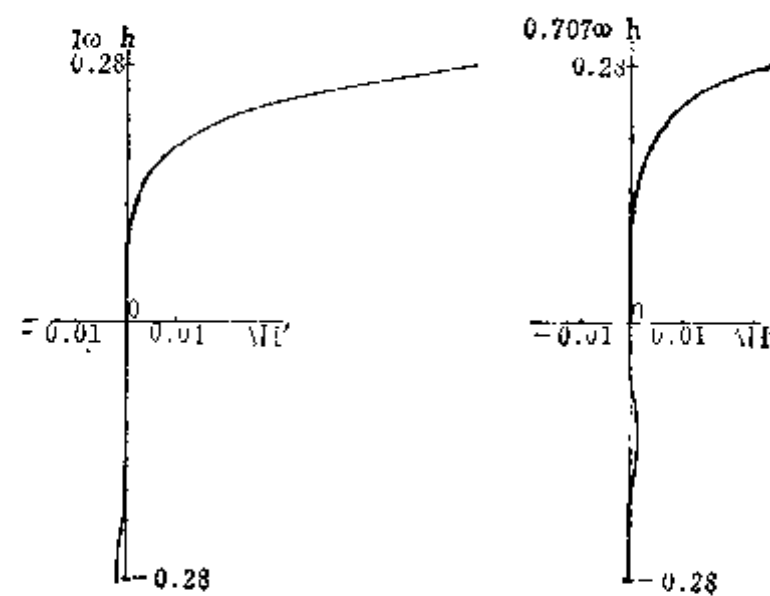
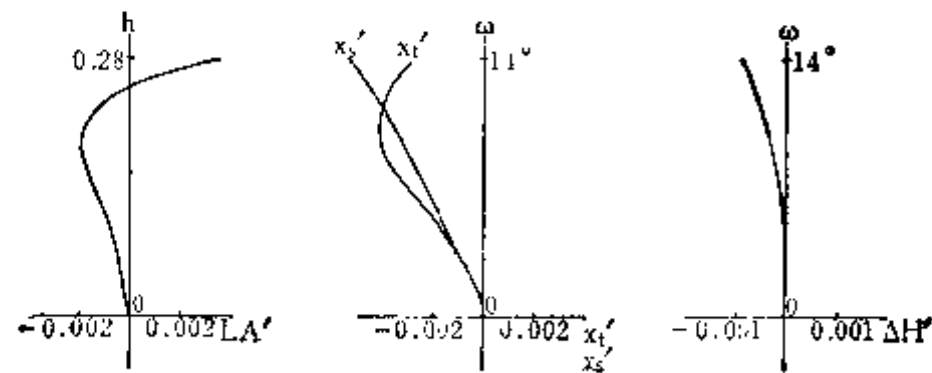
F. A. = $\pm 14^\circ$



| 序号 | r | d | n_d | v | 序号 | r | d | n_d | v |
|----|--------|--------|-------|------|----|----------|-------|-------|------|
| 1 | 2.369 | 0.160 | 1.504 | 66.7 | 6 | 1.761 | 0.105 | | |
| 2 | 0.808 | 1.248* | | | 7 | ∞ | 0.216 | 1.785 | 25.7 |
| 3 | 1.185 | 0.241 | 1.713 | 53.9 | 8 | 0.449 | 0.160 | | |
| 4 | -4.521 | 0.014 | | | 9 | 0.999 | 0.160 | 1.620 | 60.3 |
| 5 | 0.707 | 0.146 | 1.713 | 53.9 | 10 | -1.367 | | | |

1.248* = 1.008 + 0.240

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | -0.0012 | -0.0010 | -0.00036 | -0.00094 | -0.00060 | 0.2% | -3.33% |
| h 或 ω % | LA' | $\Delta H'$ | x_1' | x_s' | $x_1' - x_s'$ | K_{T1}' | $K_{T0.7}'$ |
| 100 | 0.0036 | -0.00083 | -0.0031 | -0.0053 | 0.0022 | 0.035 | 0.0057 |
| 70 | -0.0019 | -0.00034 | -0.0042 | -0.0034 | -0.00078 | 0.013 | 0.0015 |



编号: 02-00-094

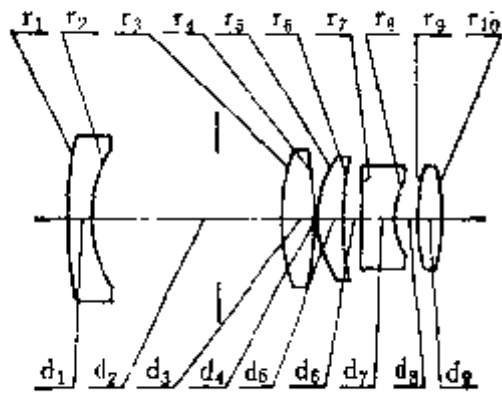
大孔径摄影或电影摄影物镜

E. F. L = 1

B. F. L = 0.80

FNo. = 1.8

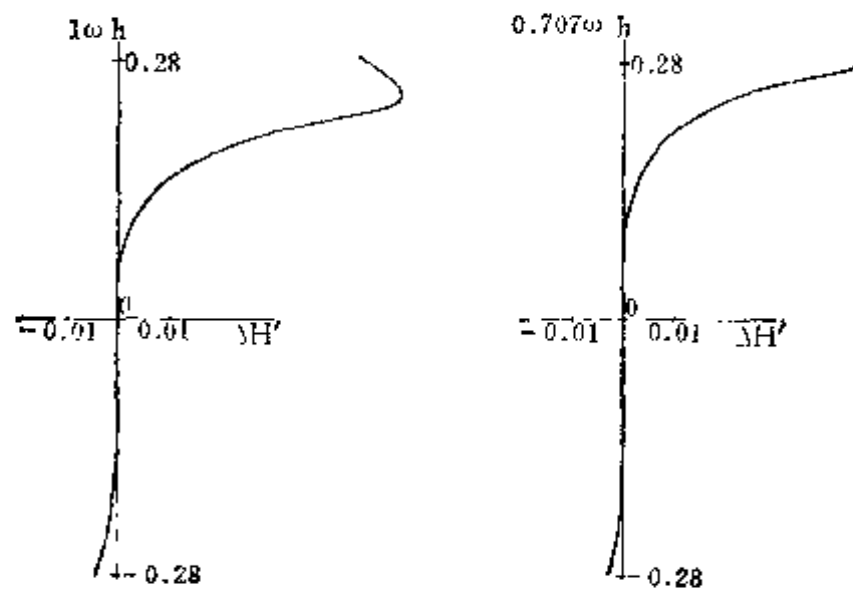
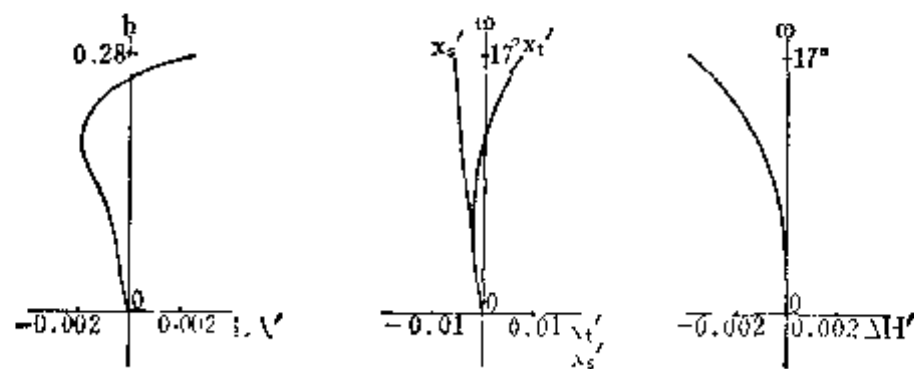
F. A. = $\pm 17^\circ$



| 序号 | r | d | nd | v | 序号 | r | d | nd | v |
|----|--------|--------|-------|------|----|---------|-------|-------|------|
| 1 | 1.569 | 0.162 | 1.504 | 66.7 | 6 | 2.920 | 0.116 | | |
| 2 | 0.694 | 1.072* | | | 7 | -80.257 | 0.194 | 1.785 | 25.7 |
| 3 | 1.132 | 0.233 | 1.720 | 50.3 | 8 | 0.458 | 0.185 | | |
| 4 | -8.110 | 0.017 | | | 9 | 0.916 | 0.152 | 1.620 | 60.3 |
| 5 | 0.799 | 0.109 | 1.720 | 50.3 | 10 | -1.175 | | | |

$$1.072^* = 0.872 + 0.200$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | IB | QP (1%) |
|--------------|--------------|--------------|--------------|--------------|---------------------------|-----------|-------------|
| | -0.0010 | -0.00087 | 0.00011 | -0.0019 | -0.0019 | 0.30 | -1.28% |
| h 或 ω | LA' | $\Delta H'$ | λ'_1 | λ'_2 | $\lambda'_1 - \lambda'_2$ | K'_{11} | $K'_{10.7}$ |
| 100 | 0.0023 | -0.0038 | 0.0078 | -0.0059 | 0.0127 | 0.021 | 0.013 |
| 70 | -0.0018 | -0.0012 | -0.00075 | -0.0015 | 0.0038 | 0.022 | 0.0039 |



编号: 02-00-095

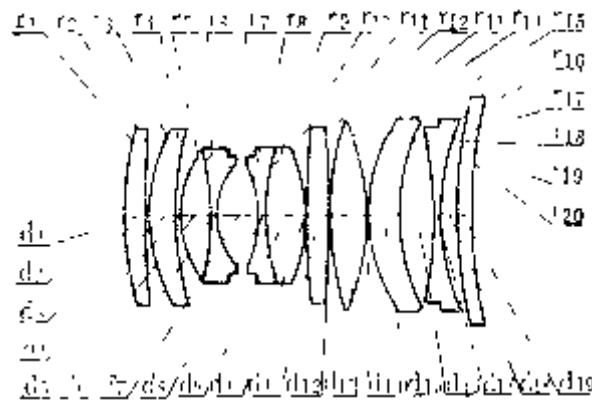
改进的红外高斯型物镜

E. F. L = 101

B. F. L = 0.80

FNo. = 1.3

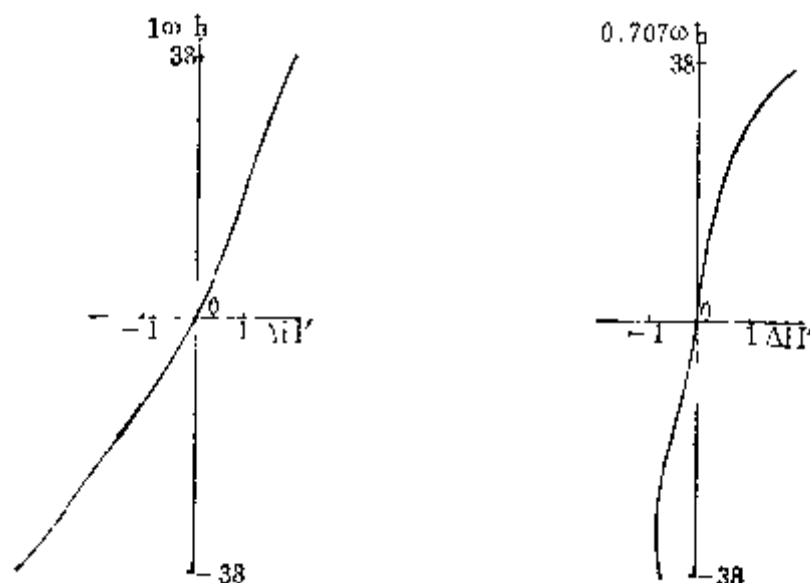
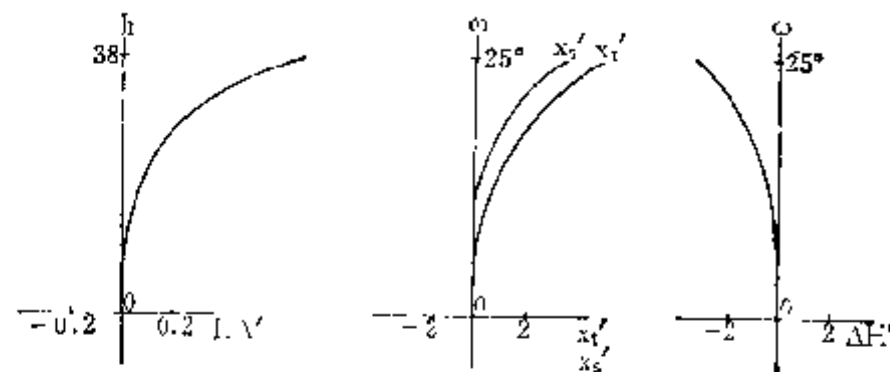
F. A. = $\pm 25^\circ$



| 序号 | r | d | n_d | v_d | 序号 | r | d | n_d | v_d |
|----|---------|-------|-----------|-------|----|---------|------|-----------|-------|
| 1 | 166.81 | 12.2 | 1.72047.7 | | 11 | 470.00 | 12.2 | 1.71653.7 | |
| 2 | 596.00 | 0.4 | | | 12 | -427.60 | 0.4 | | |
| 3 | 94.10 | 14.7 | 1.72047.7 | | 13 | 184.10 | 20.4 | 1.71653.7 | |
| 4 | 188.30 | 0.4 | | | 14 | -122.90 | 0.4 | | |
| 5 | 54.48 | 17.1 | 1.70640.8 | | 15 | 86.60 | 16.3 | 1.71653.7 | |
| 6 | -180.90 | 4.1 | 1.81325.3 | | 16 | 102.10 | 17.5 | | |
| 7 | 34.02 | 20.6* | | | 17 | -272.40 | 4.1 | 1.81325.3 | |
| 8 | -69.00 | 4.5 | 1.81325.3 | | 18 | 127.20 | 8.1 | | |
| 9 | 116.10 | 19.5 | 1.79250.2 | | 19 | 246.00 | 6.7 | 1.51263.1 | |
| 10 | -90.88 | 0.4 | | | 20 | 239.40 | | | |

20.6* = 6.0 + 14.6

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | III | QF(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | 0.072 | -0.11 | 0.33 | -0.25 | -1.93 | 46.35 | 7.10% |
| h 或 ω % | $\Delta A'$ | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.72 | -3.43 | 4.90 | 3.36 | 1.34 | -0.68 | -0.49 |
| 70 | 0.21 | -1.11 | 1.87 | 0.88 | 0.99 | 0.61 | 0.0068 |



编号: 02-00-096

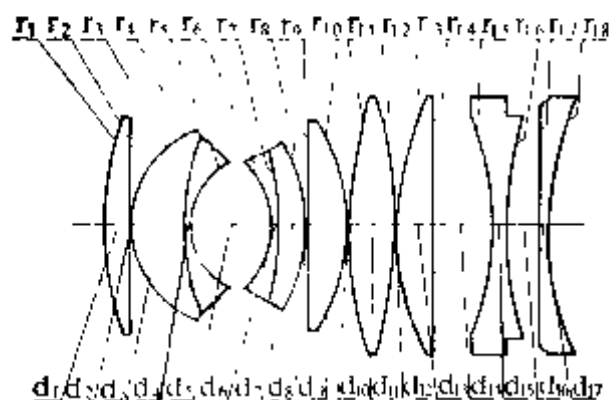
用于夜视仪器的物镜

E. F. L = 100

B. F. L = 0.398

FNo. = 1.1

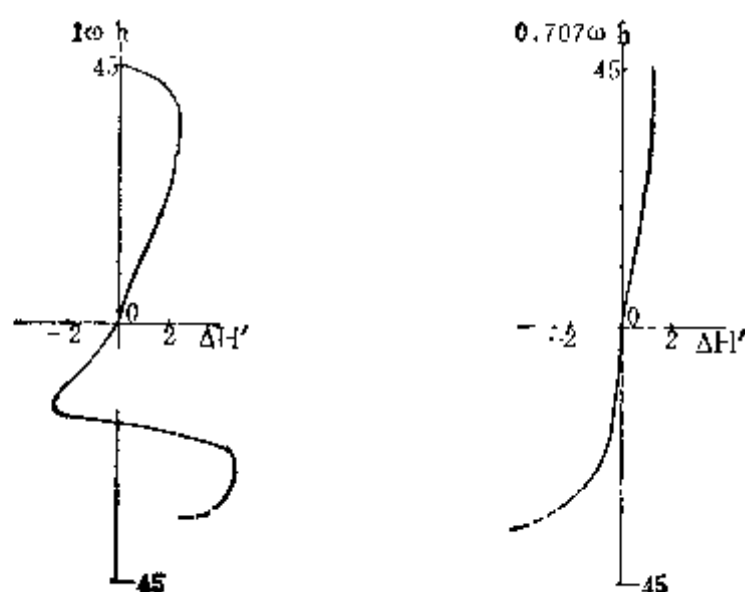
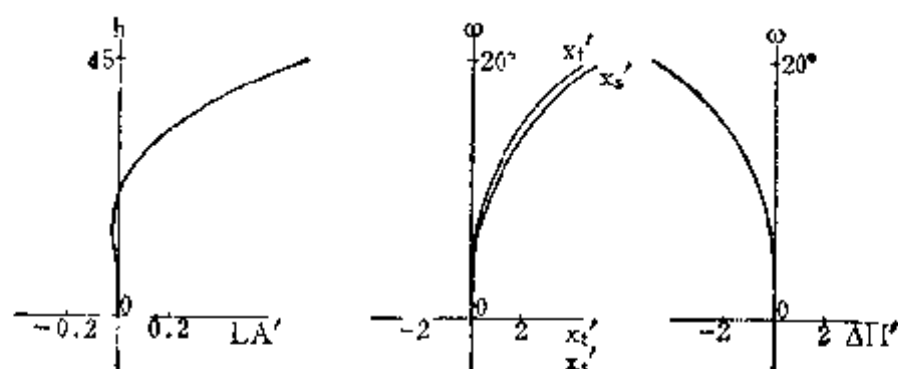
F. A. = + 20°



| 序号 | r | d | n_e | v_e | 序号 | r | d | n_e | v_e |
|----|---------|--------|-------|-------|----|----------|-------|-------|-------|
| 1 | 124.50 | 10.00 | 1.768 | 26.7 | 10 | -73.4 | 0.20 | | |
| 2 | 553.00 | 0.20 | | | 11 | 170.30 | 17.00 | 1.748 | 44.5 |
| 3 | 39.44 | 20.80 | 1.886 | 40.8 | 12 | -158.80 | 0.20 | | |
| 4 | 94.80 | 1.90 | 1.928 | 21.3 | 13 | 113.20 | 14.23 | 1.748 | 44.5 |
| 5 | 26.60 | 30.30* | | | 14 | -2830.00 | 22.70 | | |
| 6 | -31.85 | 1.90 | 1.928 | 21.3 | 15 | -114.60 | 4.70 | 1.928 | 21.2 |
| 7 | -118.90 | 11.35 | 1.855 | 23.6 | 16 | 136.80 | 12.60 | | |
| 8 | -63.35 | 0.20 | | | 17 | ∞ | 3.10 | 1.510 | 61.0 |
| 9 | -773.00 | 15.10 | 1.718 | 44.5 | 18 | 120 | | | |

30.30* = 17.00 + 13.30

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP(1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-----------------|
| | -0.087 | 0.49 | -0.26 | 1.60 | -3.12 | 35.60 | -13.48% |
| h 或 ω % | LA' | $\Delta H'$ | x'_1 | x'_2 | $x'_1 - x'_2$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.76 | -4.80 | 4.24 | 4.63 | -0.39 | | |
| 70 | 0.18 | -1.46 | 1.67 | 2.06 | -0.39 | | -0.61 |



编号: 02-00-097

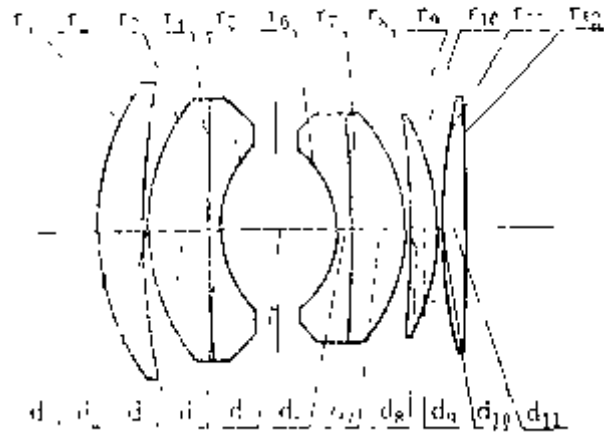
高斯型物镜

E. F. L = 1

B. F. L = 0.75

FNo. = 1.4

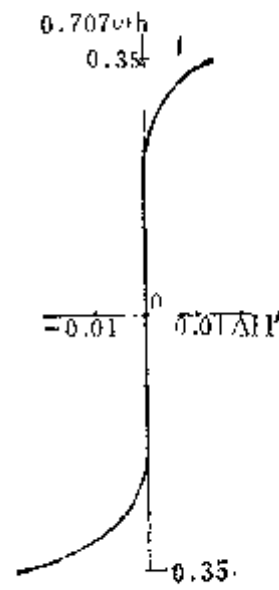
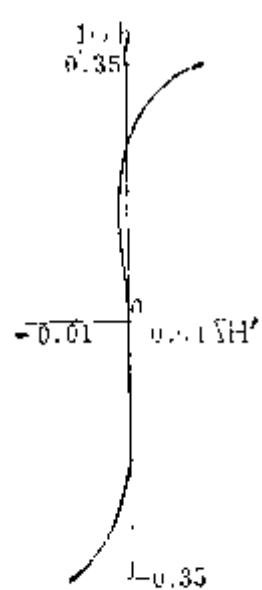
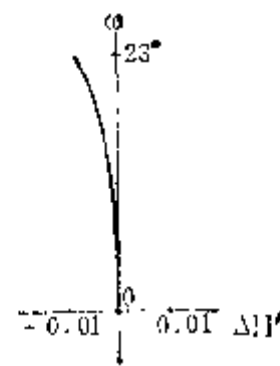
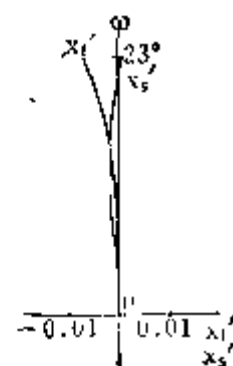
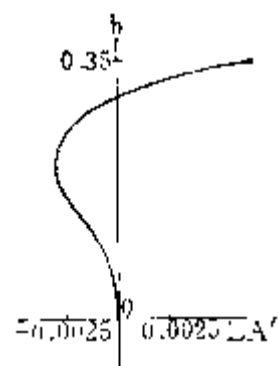
F. A. = $\pm 23^\circ$



| 序号 | r | d | n_d | v | 序号 | r | d | n_d | v |
|----|---------|---------|---------|------|----|----------|--------|---------|------|
| 1 | 0.7655 | 0.1260 | 1.66446 | 35.9 | 7 | -3.8760 | 0.1617 | 1.71300 | 53.9 |
| 2 | 2.5053 | 0.0019 | | | 8 | -0.4535 | 0.0039 | | |
| 3 | 0.5736 | 0.1686 | 1.69350 | 53.1 | 9 | -2.3256 | 0.0833 | 1.67790 | 55.5 |
| 4 | 12.4041 | 0.0329 | 1.64831 | 33.8 | 10 | -0.6357 | 0.0019 | | |
| 5 | 0.3240 | 0.3256* | | | 11 | 1.5504 | 0.0620 | 1.71300 | 53.9 |
| 6 | -0.2892 | 0.0407 | 1.69895 | 30.1 | 12 | -16.8774 | | | |

0.3256* = 0.1600 + 0.1656

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QF(1%) |
|----------------|--------------|--------------|--------------|--------------|---------------------------|-----------|-------------|
| | -0.5034 | 0.00012 | 0.00050 | -0.0020 | -0.0055 | 0.42 | -2.01% |
| h 或 $\omega\%$ | LA' | $\Delta H'$ | λ'_1 | λ'_s | $\lambda'_1 - \lambda'_s$ | K'_{H1} | $K'_{10.7}$ |
| 100 | 0.0068 | -0.0085 | -0.0071 | 0.00072 | -0.0078 | 0.0015 | 0.000038 |
| 70 | -0.0028 | -0.0030 | -0.0019 | -0.0015 | -0.00038 | -0.0060 | -0.00055 |



编号: 02-00-098

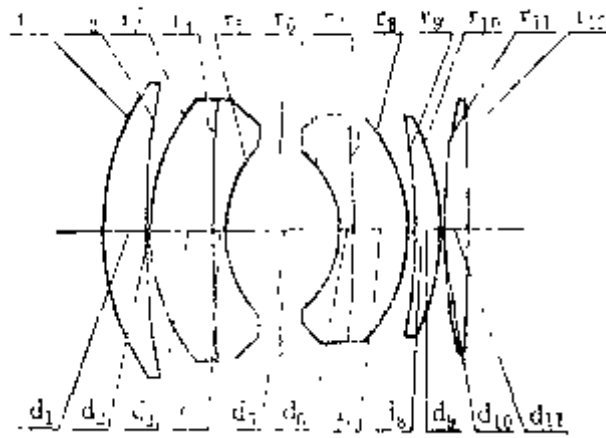
高斯型物镜

E. F. L = 1

B. F. L = 0.7455

FN₀ = 1.4

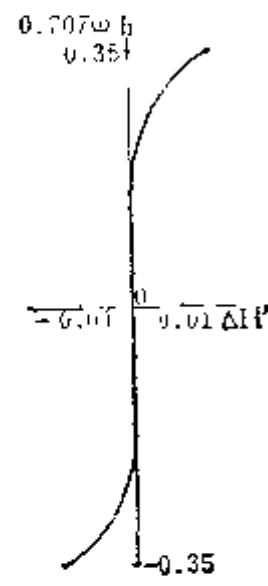
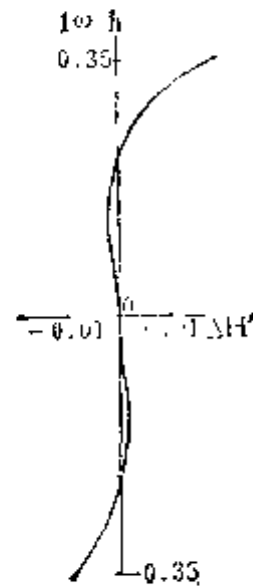
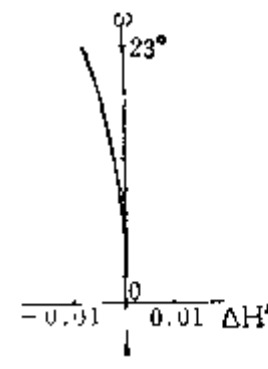
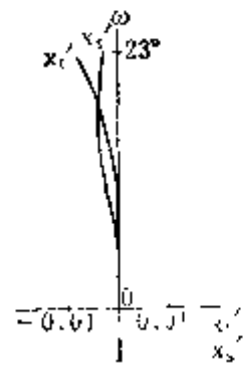
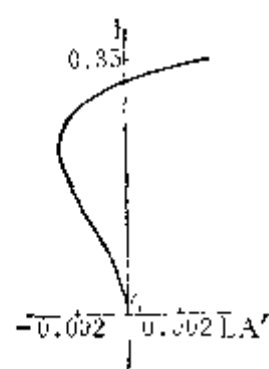
F. A. = ± 23°



| 序号 | r | d | n _d | v | 序号 | r | d | n _d | v |
|----|--------|---------|----------------|------|----|---------|--------|----------------|------|
| 1 | 0.8110 | 0.0910 | 1.71950 | 35.0 | 7 | -8.5727 | 0.1647 | 1.67790 | 55.5 |
| 2 | 2.6512 | 0.0019 | | | 8 | -0.4953 | 0.0058 | | |
| 3 | 0.5620 | 0.1202 | 1.71400 | 44.9 | 9 | -2.3256 | 0.0969 | 1.71300 | 53.9 |
| 4 | 2.7132 | 0.0059 | 1.69835 | 30.1 | 10 | -0.6610 | 0.0019 | | |
| 5 | 0.3341 | 0.3333* | | | 11 | 1.5891 | 0.0620 | 1.71300 | 53.9 |
| 6 | 0.3227 | 0.0465 | 1.71736 | 29.5 | 12 | -8.9028 | | | |

0.3333* = 0.1600 + 0.1733

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | H' | QP (100) |
|---------|--------------|--------------|------------------|------------------|-------------------------------------|------------------|---------------------------------|
| | -0.0028 | 0.00024 | 0.00073 | -0.0031 | -0.0048 | 0.42 | -1.59% |
| h p (%) | LA' | AH' | x _t ' | x _s ' | x _t ' - x _s ' | K _F ' | K _F ' _{0.7} |
| 100 | 0.033 | -0.0067 | -0.0083 | -0.0031 | -0.0052 | 0.0047 | 0.000047 |
| 70 | 0.0027 | -0.0025 | -0.0025 | -0.0035 | 0.0010 | 0.0015 | 0.00021 |



编号: 02-00-099

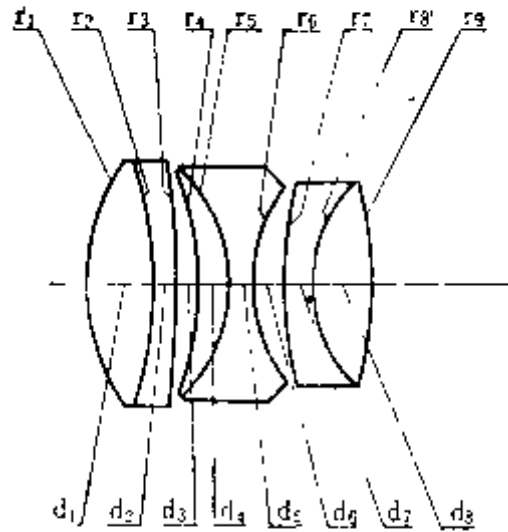
大 孔 径 物 镜

E. F. L = 100

B. F. L = 67.81

FN₀ = 2.5

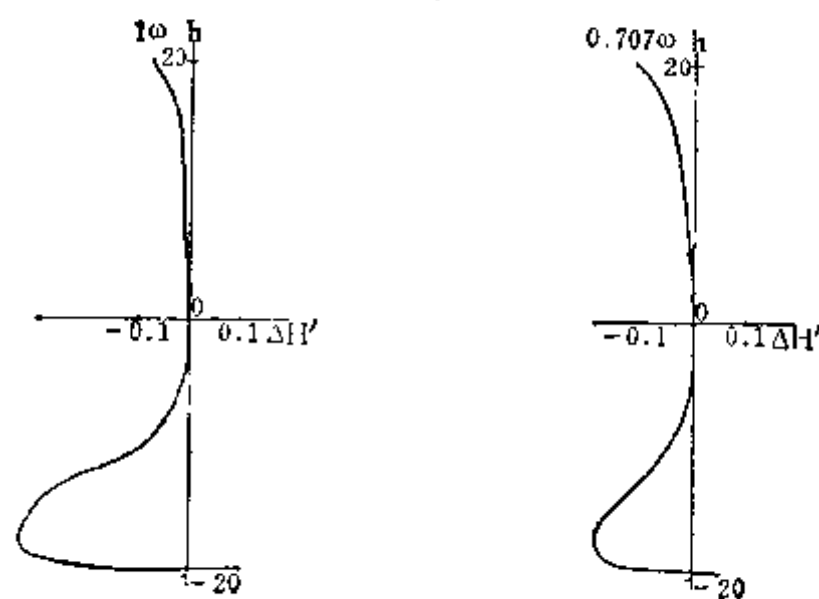
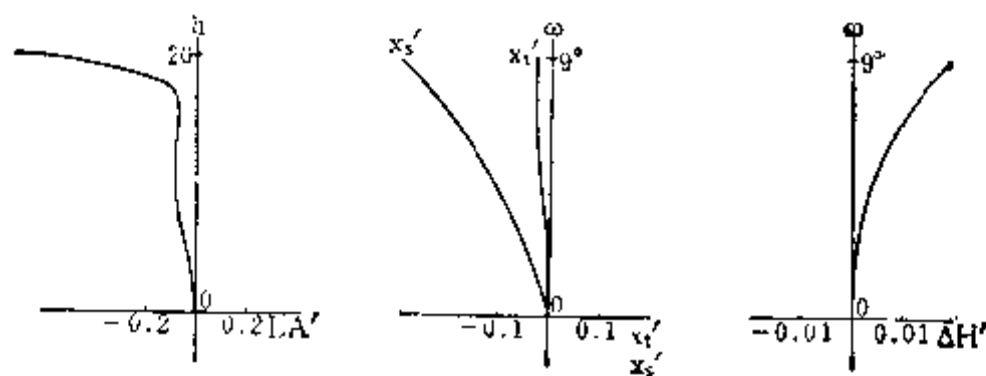
F. A. = ± 9° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|-------|----------------|------|----|--------|-------|----------------|------|
| 1 | 37.04 | 11.00 | 1.6233 | 58.1 | 6 | 28.96 | 5.62* | | |
| 2 | -67.36 | 4.22 | 1.6122 | 37.3 | 7 | 69.82 | 4.68 | 1.5896 | 53.0 |
| 3 | -351.50 | 3.60 | | | 8 | 22.86 | 10.30 | 1.6233 | 58.1 |
| 4 | -61.12 | 5.62 | 1.6741 | 32.0 | 9 | -88.28 | | | |
| 5 | -27.56 | 3.74 | 1.58158 | 40.7 | | | | | |

$$5.62^* = 3.00 + 2.62$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1ω) |
|---------|--------------|--------------|------------------|------------------|-------------------------------------|-------------------|---------------------|
| | -0.016 | -0.0048 | 0.011 | -0.037 | 0.0087 | 16.13 | 0.12% |
| h 或 ω % | LA' | ΔH' | x _t ' | x _s ' | x _t ' - x _s ' | K _{t1} ' | K _{tc.7} ' |
| 100 | -0.72 | 0.020 | -0.028 | -0.30 | 0.27 | 1.43 | -0.15 |
| 70 | -0.078 | 0.0074 | -0.021 | -0.160 | 0.139 | 0.36 | -0.093 |



编号: 02-00-100

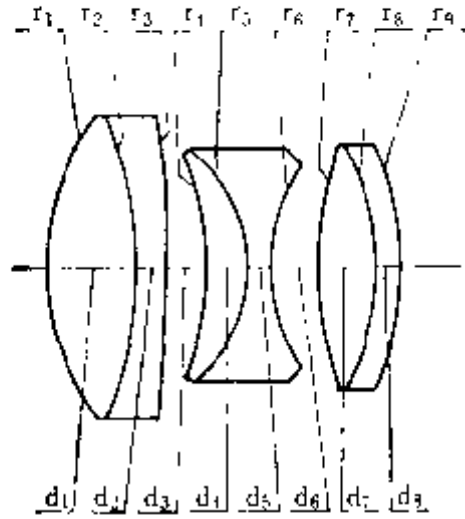
大 孔 径 物 镜

E. F. L = 100

B. F. L = 60.44

FNo. = 1.8

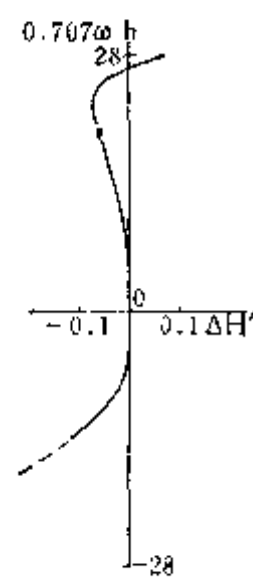
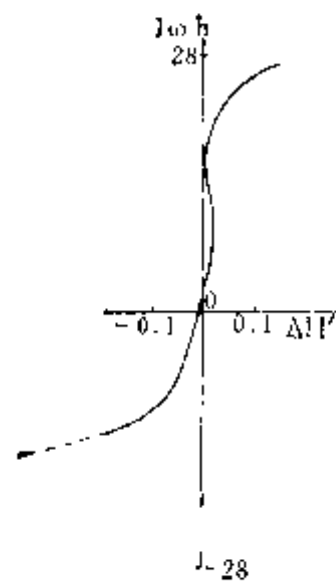
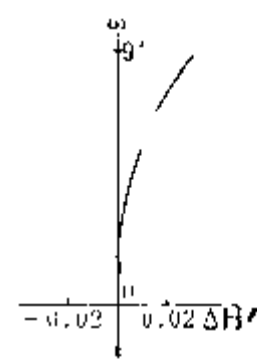
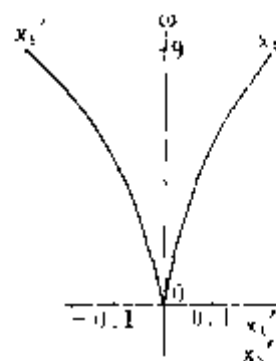
F. A. = $\pm 9^{\circ}$ **



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|-----------|------|-------|------|----|-----------|-------|-------|------|
| 1 | 48.817.98 | | 1.624 | 58.2 | 6 | 37.1 | 8.99* | | |
| 2 | -69.3 | 5.72 | 1.622 | 36.1 | 7 | 81.711.44 | | 1.624 | 58.2 |
| 3 | -208.4 | 7.85 | | | 8 | -47.8 | 4.09 | 1.541 | 47.2 |
| 4 | -53.7 | 8.17 | 1.624 | 58.2 | 9 | -63.9 | | | |
| 5 | -27.6 | 4.90 | 1.567 | 42.8 | | | | | |

8.99* = 3.00 + 5.99

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | Hl | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------------------|-----------------|------------------|
| | -0.30 | 0.0066 | 0.043 | 0.089 | 0.017 | 16.22 | 0.20% |
| h 或 ω % | LA' | \H' | λ_t' | λ_s' | $\lambda_t' - \lambda_s'$ | λ_{t1}' | $K_{F0.7}'$ |
| 100 | -0.13 | 0.033 | 0.22 | -0.27 | 0.49 | | -0.47 |
| 70 | -0.22 | 0.011 | 0.12 | -0.14 | 0.26 | | -0.28 |



编号: 02-00-101

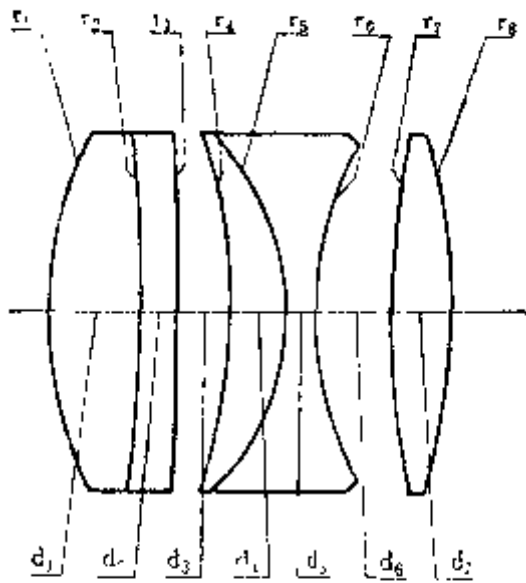
大 孔 径 物 镜

E. F. L = 100

B. F. L = 74.92

FN₀ = 2.5

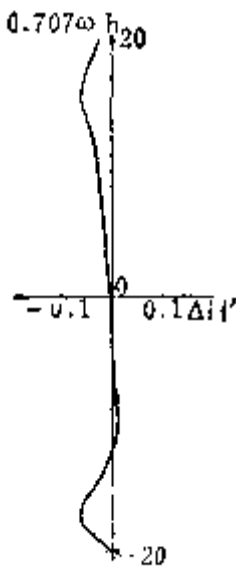
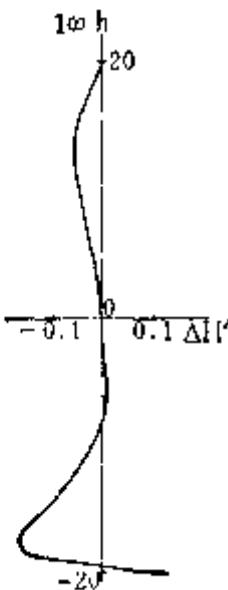
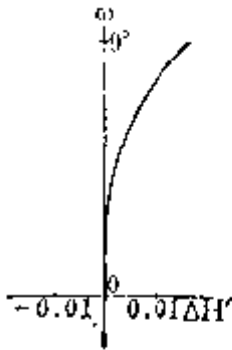
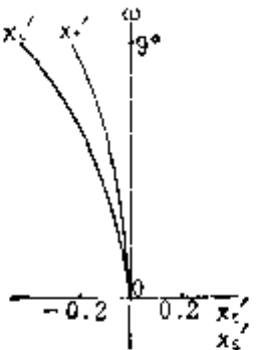
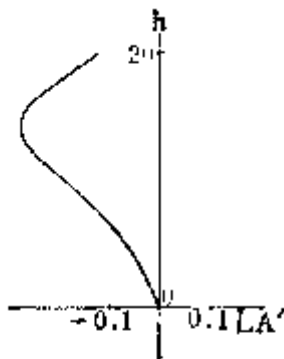
F. A. = ± 9° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|--------|------|----------------|------|----|-------|-------|----------------|------|
| 1 | 13.3 | 9.60 | 1.624 | 58.2 | 5 | -27.8 | 3.20 | 1.567 | 42.8 |
| 2 | -160.0 | 4.00 | 1.622 | 36.1 | 6 | 38.0 | 8.16* | | |
| 3 | -560.0 | 5.84 | | | 7 | 95.2 | 6.40 | 1.624 | 58.2 |
| 4 | -61.5 | 6.20 | 1.624 | 44.8 | 8 | -65.4 | | | |

8.16* = 2.16 + 6.00

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (%) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|-------------|
| | -0.086 | 0.0031 | 0.0077 | -0.045 | 0.0073 | 16.14 | 0.10% |
| h 或 ω % | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{11} | $K'_{10.7}$ |
| 100 | -0.12 | 0.016 | -0.23 | -0.11 | 0.21 | 0.061 | -0.061 |
| 70 | -0.27 | 0.0062 | -0.129 | -0.23 | 0.10 | -0.0349 | -0.034 |



编号: 02-00-102

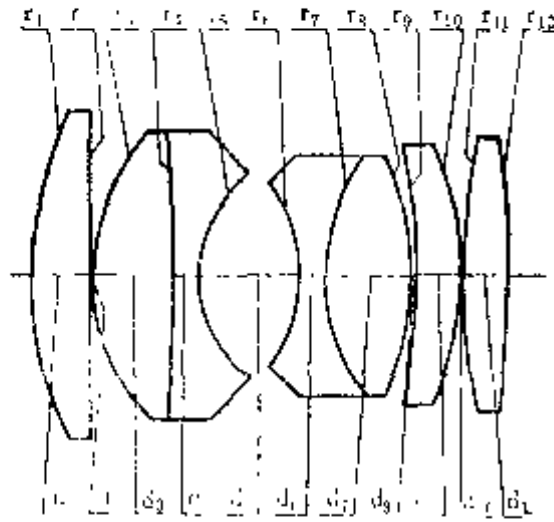
摄影物镜

E. F. L = 100

B. F. L = 53.65

FN₀ = 1.5

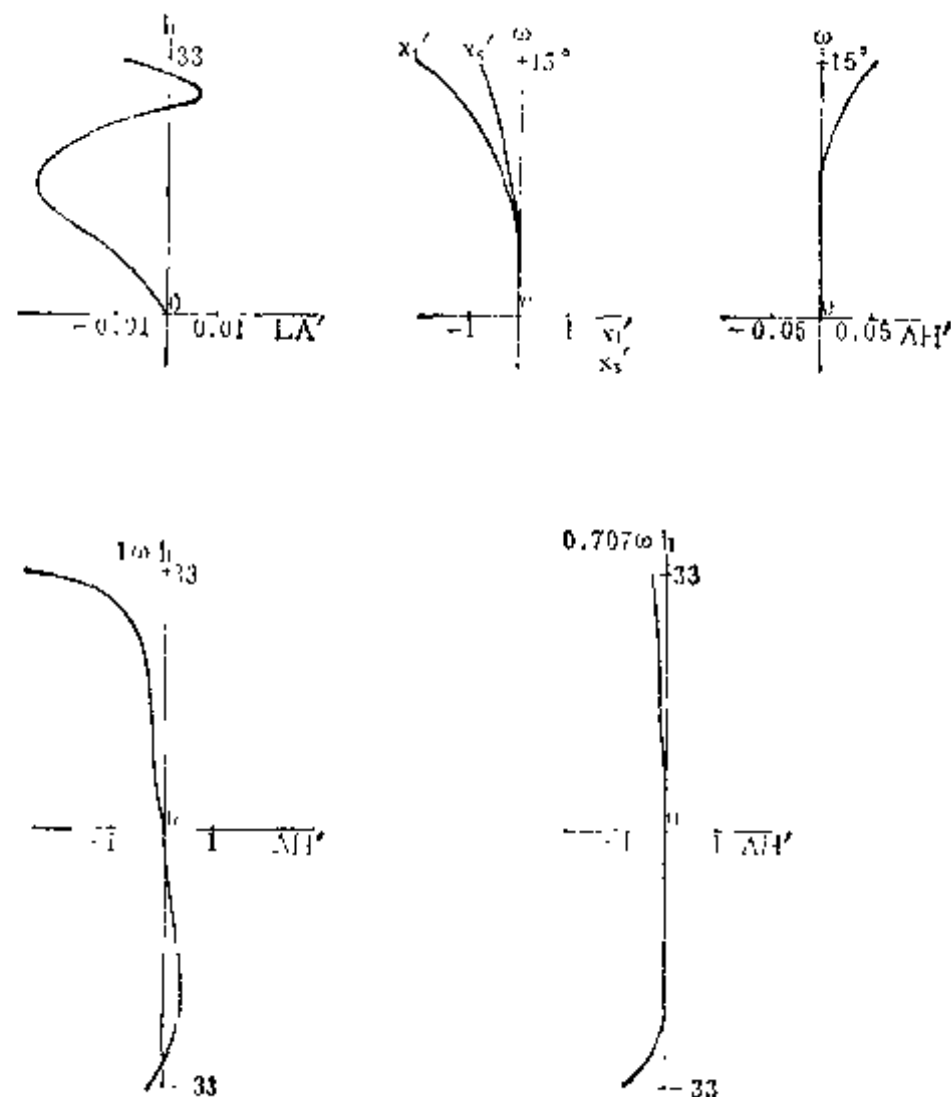
F. A. = ± 15° **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|---------|----------------|------|----|---------|--------|----------------|------|
| 1 | 80.37 | 12.290 | 1.6202 | 60.4 | 7 | 43.50 | 18.910 | 1.6202 | 60.4 |
| 2 | 1968.50 | 0.378 | | | 8 | -80.31 | 0.378 | | |
| 3 | 45.39 | 17.020 | 1.6202 | 60.4 | 9 | -176.80 | 9.455 | 1.6202 | 60.4 |
| 4 | -387.60 | 5.673 | 1.5814 | 40.8 | 10 | -71.20 | 0.378 | | |
| 5 | 26.21 | 21.750* | | | 11 | 139.9 | 9.455 | 1.6202 | 60.4 |
| 6 | -33.19 | 5.673 | 1.5822 | 42.0 | 12 | -191.00 | | | |

21.750* = 11.000 + 10.750

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HI | QP (100) |
|---------|-----------------|-----------------|------------------|------------------|-------------------------------------|----------------|----------|
| | -0.013 | 0.025 | -0.019 | -0.17 | 0.014 | 26.50 | 0.13% |
| h 或 ω % | LA' | AI' | x _t ' | x _s ' | x _t ' - x _s ' | k _T | 10.7 |
| 100 | -0.0094 | 0.056 | -2.10 | -0.37 | -1.23 | -1.61 | -0.039 |
| 50 | -0.016 | 0.010 | -0.74 | -0.43 | -0.31 | -0.51 | -0.026 |



编号: 02-00-103

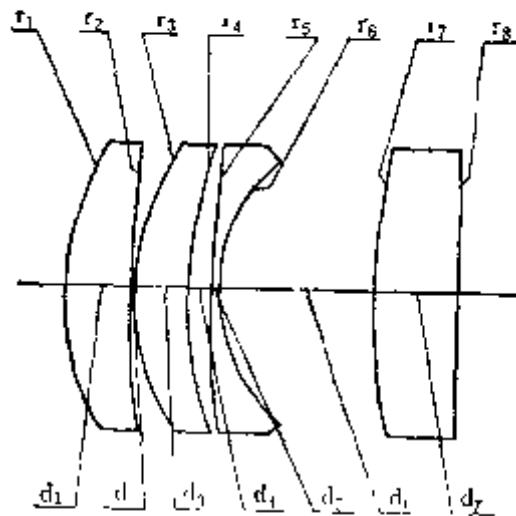
四组元物镜

E. F. L = 100

B. F. L = 49.711

FNo. = 2

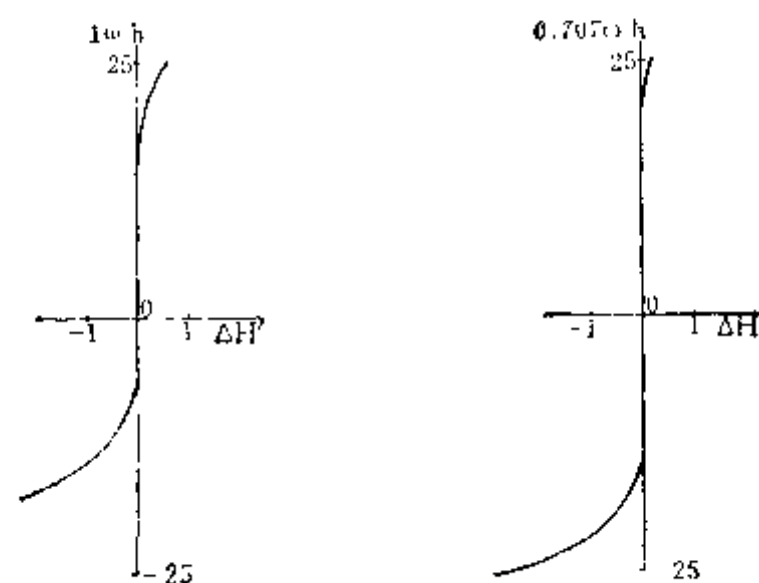
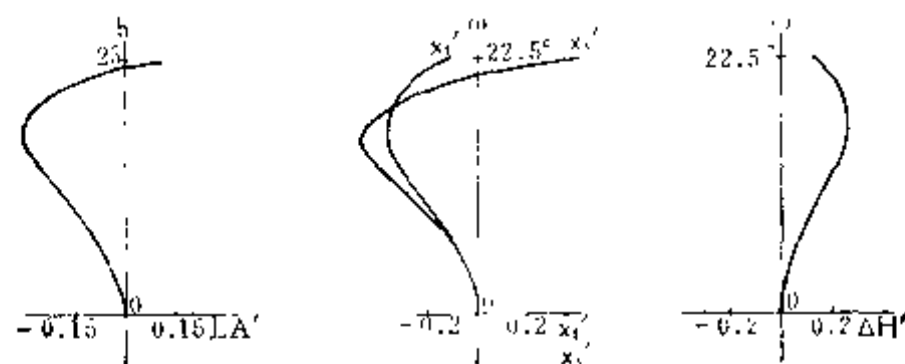
F. A. = $\pm 22.5^\circ$



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|--------|----------------|------|----|---------|----------|----------------|------|
| 1 | 41.155 | 9.6282 | 1.7359 | 51.4 | 5 | 172.479 | 1.1554 | 1.7686 | 26.3 |
| 2 | 153.450 | 0.1926 | | | 6 | 24.533 | 22.4142* | | |
| 3 | 35.861 | 8.0936 | 1.7369 | 51.4 | 7 | 98.823 | 12.0489 | 1.7546 | 34.7 |
| 4 | 57.796 | 3.0779 | | | 8 | 372.074 | | | |

22.4142* = 12.4142 + 10.0000

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.13 | 0.019 | -0.0086 | -0.21 | 0.56 | 41.23 | 0.33% |
| 1 或 ω_0 | LA' | $\Delta H'$ | x'_t | x'_s | $x'_t - x'_s$ | K'_{T1} | $K'_{T0.7}$ |
| 100 | 0.10 | 0.13 | 0.097 | 0.38 | -0.48 | | -1.09 |
| 70 | -0.30 | 0.27 | -0.38 | 0.48 | 0.10 | -1.33 | -0.14 |



编号: 02-00-104

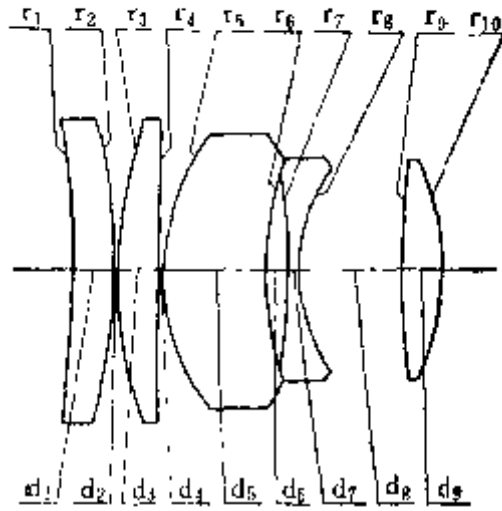
五片式物镜

E. F. L = 100

B. F. L = 60.1944

FNo. = 1.95

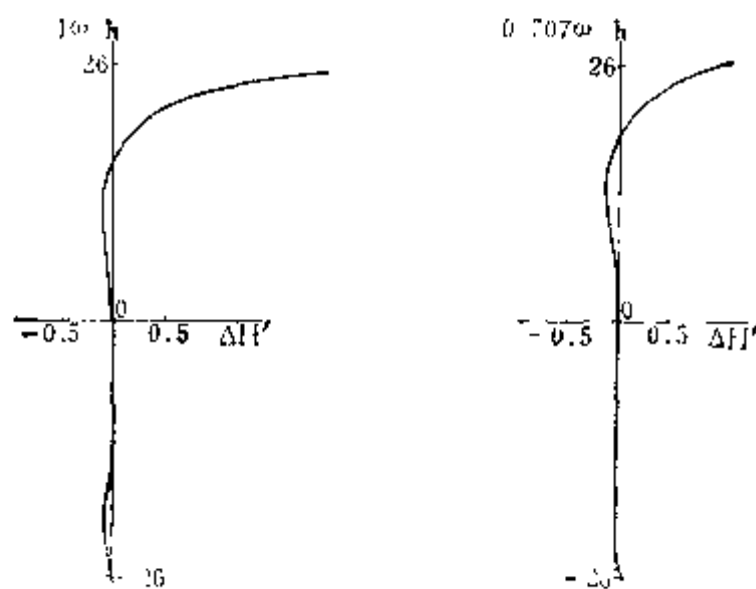
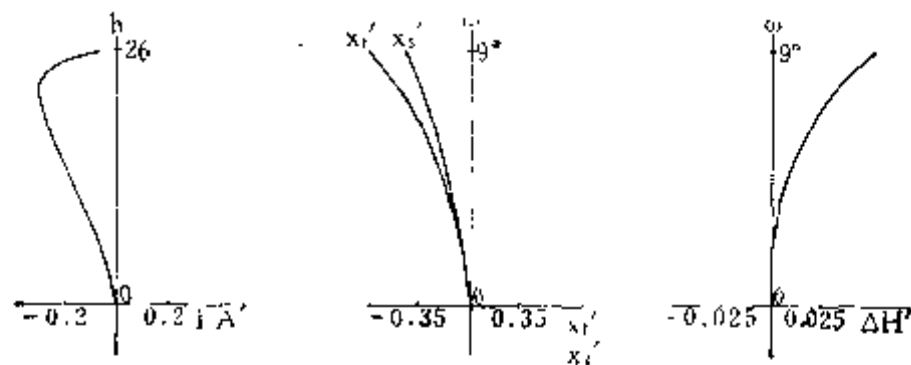
F. A. = $\pm 9^{\circ}$ **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|-----------|----------|----------------|---|----|-----------|-----------|----------------|---|
| 1 | -179.3726 | 8.24519 | 1.620360.3 | | 6 | 66.0858 | 4.75684 | | |
| 2 | -166.1365 | 0.21142 | | | 7 | -147.2373 | 2.11415 | 1.718029.5 | |
| 3 | 91.6120 | 8.13949 | 1.620360.3 | | 8 | 34.5325 | 20.08444* | | |
| 4 | -403.0888 | 0.52854 | | | 9 | 157.5050 | 8.45661 | 1.620360.3 | |
| 5 | 11.9415 | 20.08444 | 1.620360.3 | | 10 | -48.4202 | | | |

20.08444* = 4.22830 + 15.85614

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | W | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.10 | -0.085 | -0.012 | -0.058 | 0.027 | 16.13 | 0.32% |
| h 或 ω % | L.A' | $\Delta H'$ | x'_1 | x'_5 | $x'_1 - x'_5$ | K'_{f1} | $K'_{f0.7}$ |
| 100 | -0.076 | 0.052 | -0.69 | -0.48 | -0.21 | 1.04 | 0.038 |
| 70 | -0.28 | 0.018 | -0.35 | 0.25 | -0.099 | 0.51 | -0.024 |

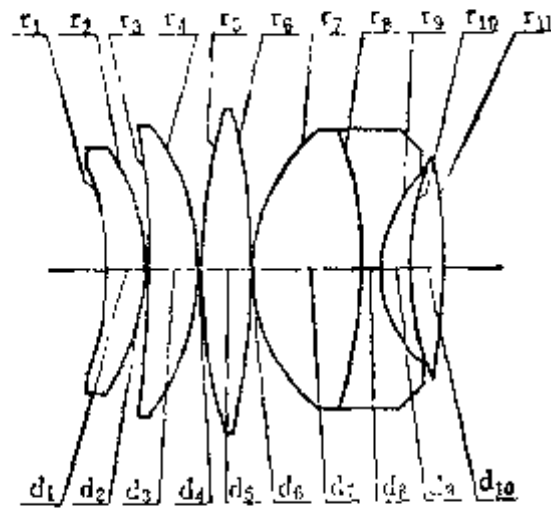


编号: 02-00-106

放 大 镜

E.F.L = 1 B.F.L = -0.23 FNo. = 0.7 F.A. = $\pm 30^\circ$

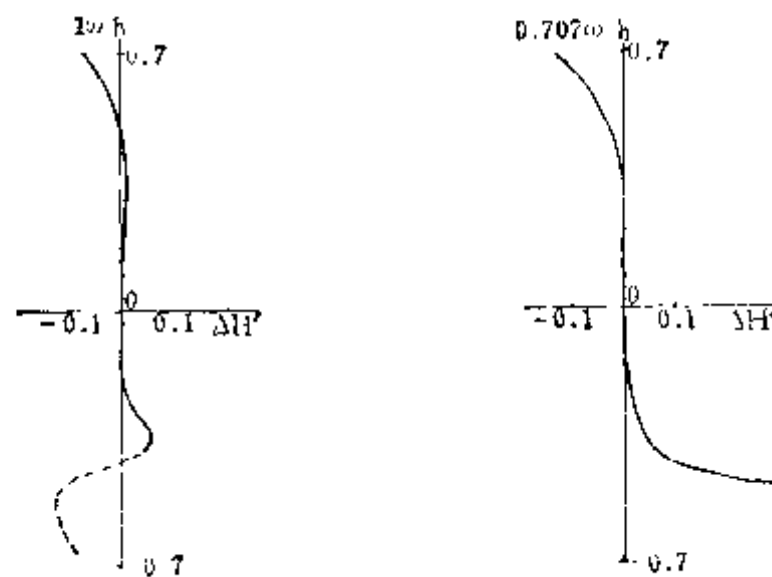
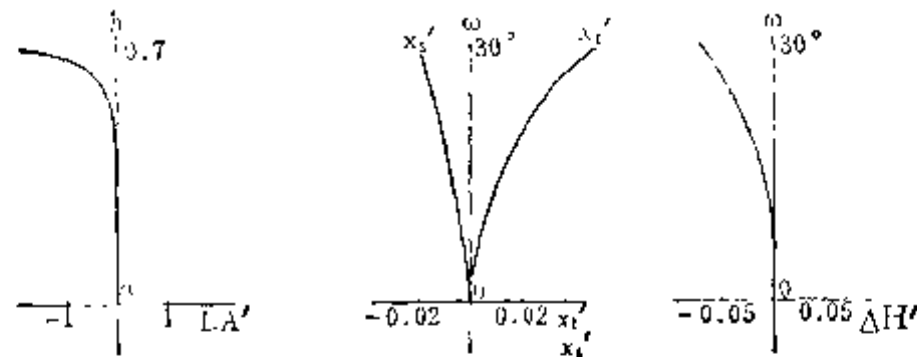
$L_{p1}' = -0.4982$ $l_1 = -\infty$



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|---------|----------------|------|----|---------|--------|----------------|------|
| | | 0.1932* | | | 6 | -5.2415 | 0.0080 | | |
| 1 | -2.1522 | 0.3278 | 1.74795 | 44.8 | 7 | 1.4263 | 0.8686 | 1.73688 | 51.7 |
| 2 | -1.6198 | 0.0048 | | | 8 | -3.2318 | 0.1359 | 1.7919 | 25.8 |
| 3 | 7.4036 | 0.3918 | 1.74795 | 44.8 | 9 | 0.9538 | 0.2478 | | |
| 4 | -1.8597 | 0.0080 | | | 10 | 2.3413 | 0.2718 | 1.71616 | 53.8 |
| 5 | 4.3053 | 0.3997 | 1.71616 | 53.8 | 11 | -4.7218 | 1.0400 | | |

* 此系出瞳距离。

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | (QP (100)) |
|----------------|--------------|--------------|--------------|--------------|---------------|----------|------------|
| | -0.25 | 0.036 | 0.033 | -0.061 | -0.024 | 0.57 | -13.25% |
| h 或 $\omega\%$ | LA' | $\Delta H'$ | v_t' | v_s' | $x_t' - x_s'$ | K_{T1} | $K_{10.7}$ |
| 100 | -1.96 | -0.075 | 0.050 | -0.019 | 0.069 | | |
| 70 | -0.15 | -0.025 | 0.023 | -0.012 | 0.035 | | |



编号: 02-00-107

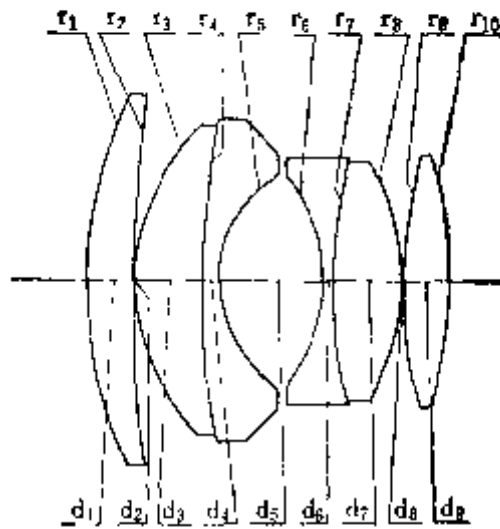
高斯型物镜

E. F. L = 1

B. F. L = 0.5178

FN₀ = 1

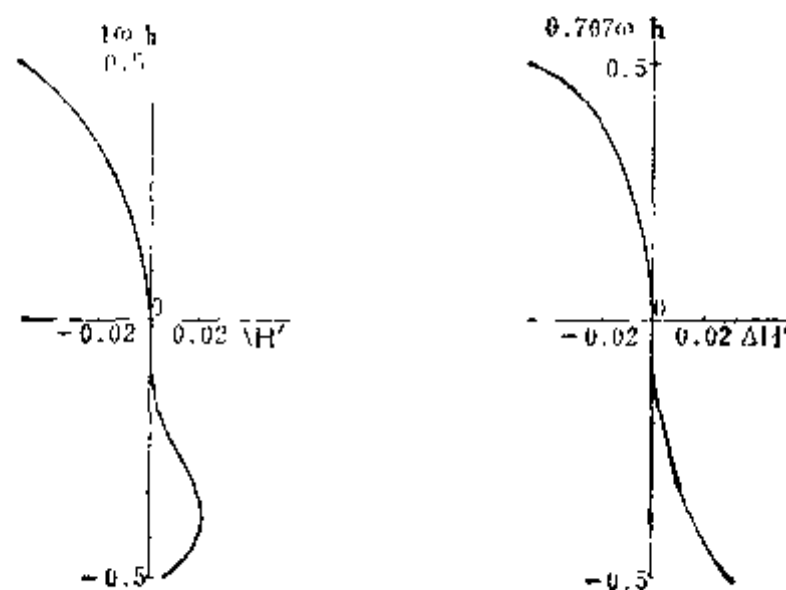
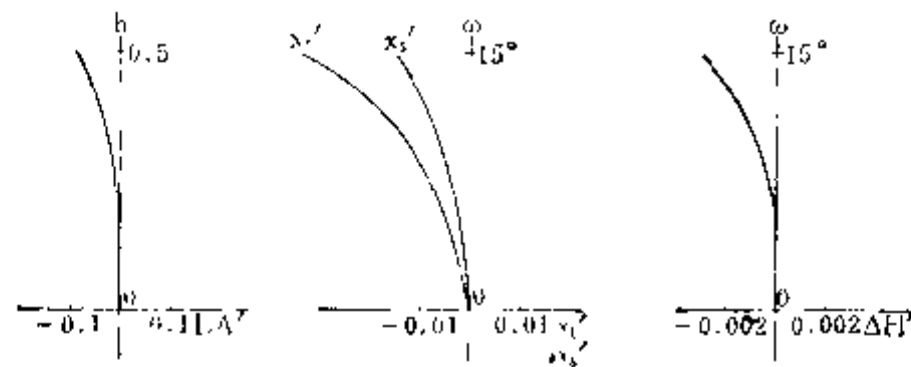
F. A. = ±15°**



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|--------|---------|--------|------|----|---------|--------|--------|------|
| 1 | 1.1506 | 0.1296 | 1.8206 | 45.0 | 6 | -0.4429 | 0.0306 | 1.8427 | 30.0 |
| 2 | 4.5715 | 0.0006 | | | 7 | 1.3631 | 0.1785 | 1.9006 | 40.4 |
| 3 | 0.5664 | 0.2242 | 1.9006 | 40.4 | 8 | -0.6550 | 0.0006 | | |
| 4 | 2.3972 | 0.0412 | 1.7918 | 25.9 | 9 | 1.1652 | 0.1308 | 1.6940 | 54.5 |
| 5 | 0.3442 | 0.2860* | | | 10 | -1.0536 | | | |

$$0.2860^* = 0.1460 + 0.1400$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------------|------------|------------------|
| | -0.030 | 0.0021 | -0.0037 | -0.0045 | -0.0016 | 0.26 | -1.12% |
| h 或 $\omega\%$ | LA' | $\Delta H'$ | χ'_1 | χ'_4 | $\chi'_1 - \chi'_4$ | K_{T1}^* | $K_{T0.7}^*$ |
| 100 | -0.092 | -0.0029 | -0.034 | -0.005 | -0.019 | -0.022 | -0.0014 |
| 70 | -0.034 | -0.00087 | 0.0164 | -0.0081 | -0.0083 | -0.0090 | -0.00056 |



编号: 02-00-109

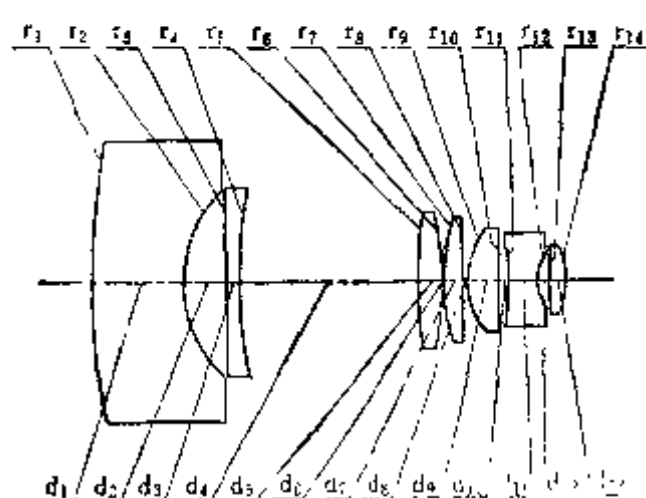
反 远 距 型 物 镜

E. F. L = 1.03

B. F. L = 0.84

FNo. = 1.6

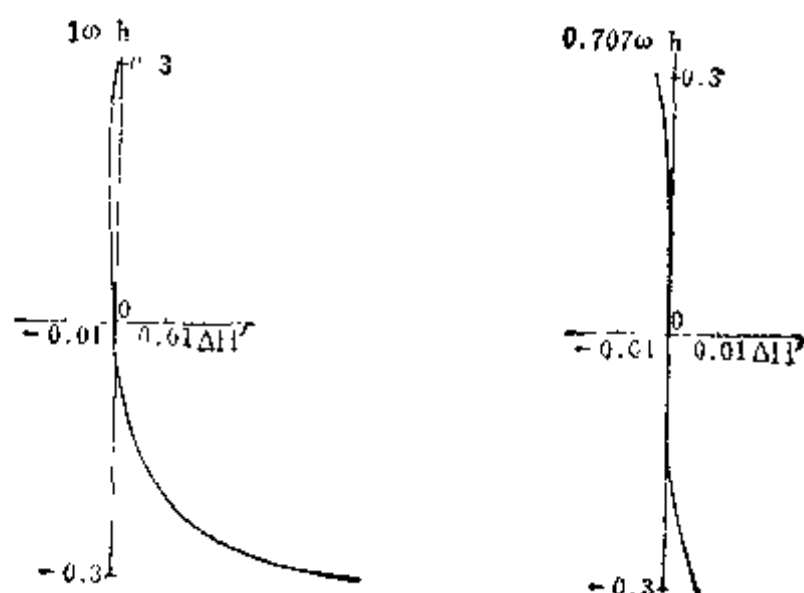
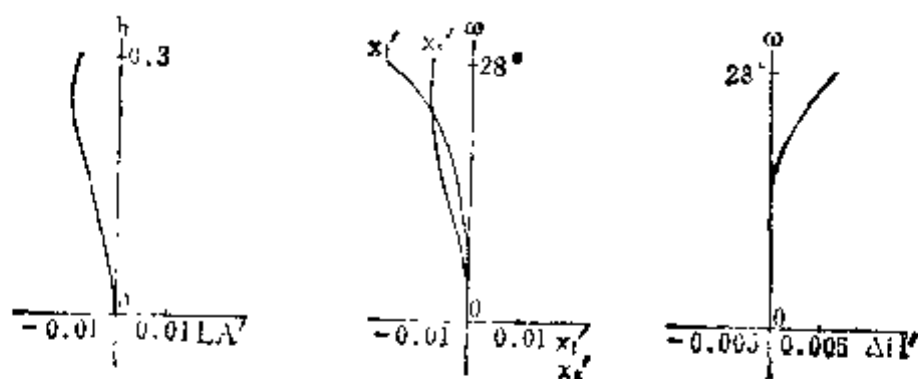
F. A. = $\pm 28^\circ$



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|---------|-------|-------|------|----|---------|--------|-------|------|
| 1 | 10.650 | 1.215 | 1.487 | 70.4 | 8 | -24.784 | 0.015 | | |
| 2 | 1.689 | 0.615 | | | 9 | 0.988 | 0.446 | 1.501 | 16.9 |
| 3 | -20.931 | 0.169 | 1.518 | 65.1 | 10 | 13.517 | 0.108 | | |
| 4 | 6.461 | 2.415 | | | 11 | -4.626 | 0.431 | 1.785 | 26.1 |
| 5 | 4.541 | 0.323 | 1.518 | 65.1 | 12 | 0.668 | 0.154* | | |
| 6 | -4.541 | 0.015 | | | 13 | 2.587 | 0.277 | 1.638 | 57.3 |
| 7 | 2.543 | 0.262 | 1.620 | 60.3 | 14 | -1.093 | | | |

0.154* = 0.080 + 0.074

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|--------------|-----------|------------|
| | 0.0034 | -0.00030 | 0.00044 | -0.0031 | 0.00072 | 0.54 | 1.11% |
| h 或 $\omega\%$ | $L A'$ | $\Delta H'$ | x_1' | x_2' | $x_3 - x_2'$ | K_{T1}' | $K_{T0.7}$ |
| 10% | -0.0088 | 0.0061 | -0.0178 | -0.0083 | -0.0095 | 0.023 | 0.0049 |
| 70 | -0.0079 | 0.0010 | -0.0038 | -0.0068 | 0.0030 | 0.0020 | 0.00027 |



编号: 00-00-110

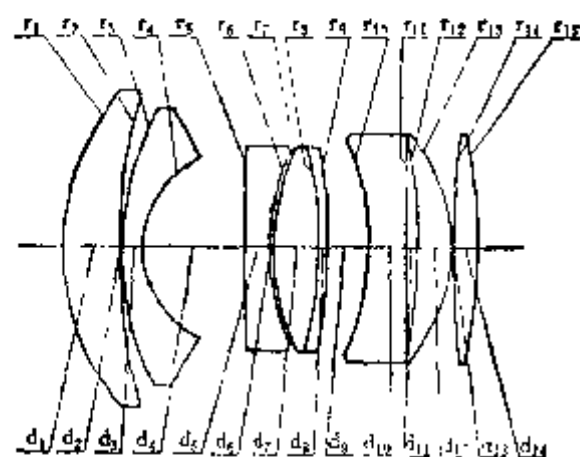
大孔径广角摄影镜头

E. F. L = 1

B. F. L = 1.138

FN₀ = 2

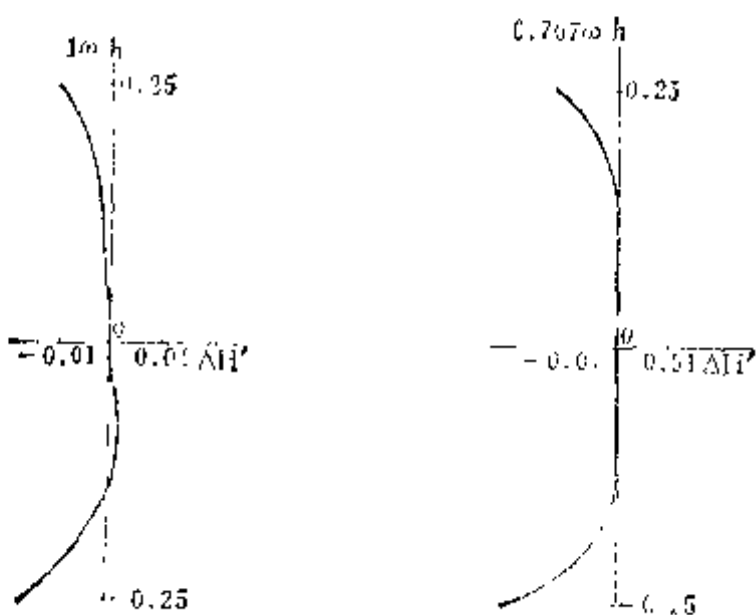
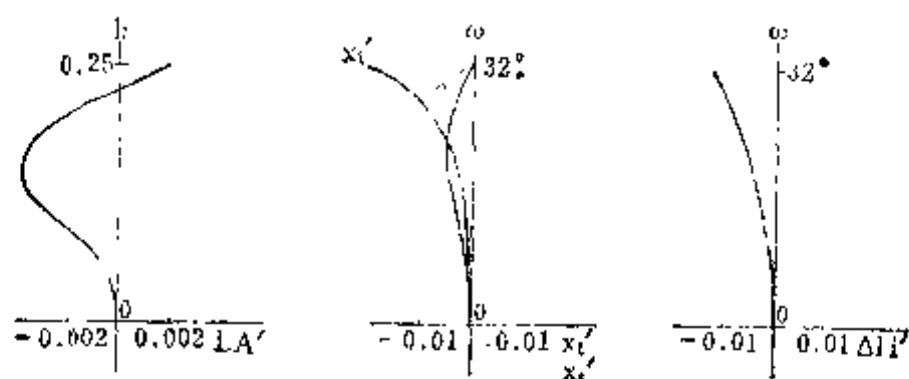
F. A. = + 32°



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|---------|--------|----------------|------|----|---------|---------|----------------|------|
| 1 | 0.7781 | 0.1941 | 1.7234 | 37.9 | 9 | -1.9958 | 0.1347* | | |
| 2 | 1.9389 | 0.0040 | | | 10 | -0.8004 | 0.1247 | 1.7174 | 29.5 |
| 3 | 1.0004 | 0.0639 | 1.5163 | 64.0 | 11 | 4.5543 | 0.0400 | | |
| 4 | 0.3198 | 0.3317 | | | 12 | -1.7400 | 0.1110 | 1.7292 | 54.6 |
| 5 | 81.3104 | 0.0833 | 1.8052 | 25.4 | 13 | -0.5517 | 0.0029 | | |
| 6 | 0.3185 | 0.0157 | | | 14 | 2.6732 | 0.0833 | 1.6968 | 55.6 |
| 7 | 0.7053 | 0.1441 | 1.8061 | 40.8 | 15 | -1.6010 | | | |
| 8 | -1.3701 | 0.0285 | 1.6990 | 30.1 | | | | | |

$$0.1347^* = 0.0700 + 0.0647$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|--------|--------------|--------------|--------------|--------------|-----------------------|----------|------------|
| | -0.0025 | 0.0014 | 0.00034 | -0.0028 | -0.0071 | 0.62 | -1.97% |
| h 或 0% | LA' | $\Delta H'$ | γ_1 | γ_2 | $\gamma_3 - \gamma_2$ | K_{11} | $K_{10.7}$ |
| 100 | 0.0023 | -0.012 | -0.021 | 0.00089 | -0.022 | -0.013 | -0.0019 |
| 70 | -0.0035 | -0.0005 | -0.0040 | -0.0054 | 0.0011 | 0.016 | -0.0014 |



编号: 02-00-111

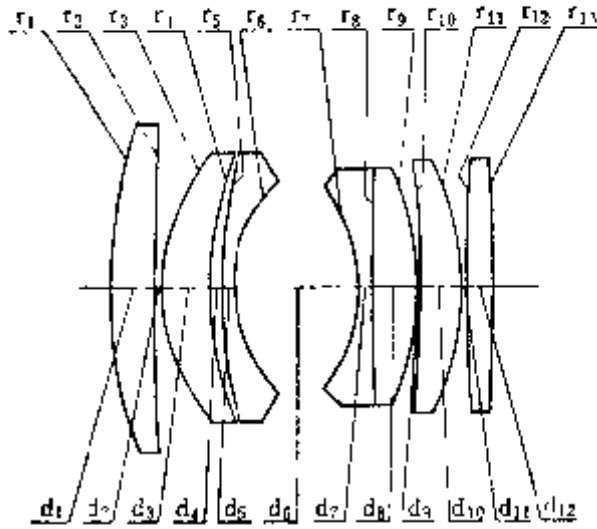
扩展的高斯型摄影物镜

E.F.L = 1

B.F.L = 0.69672

FNo. = 1.4

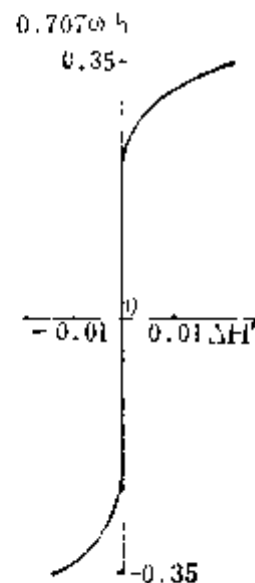
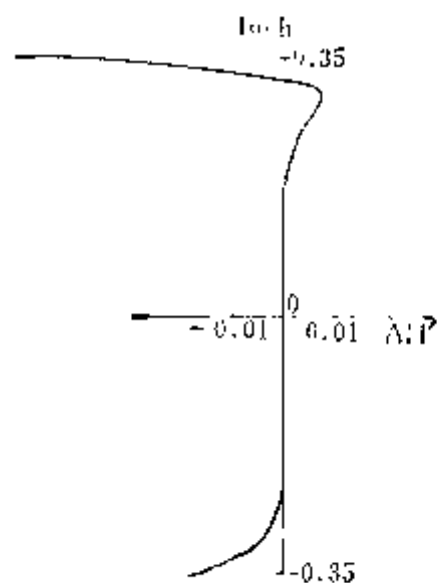
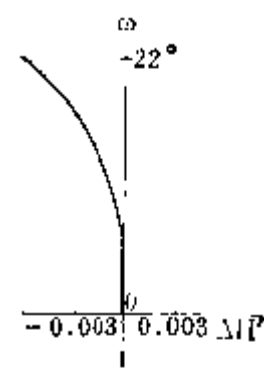
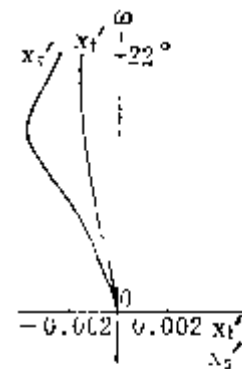
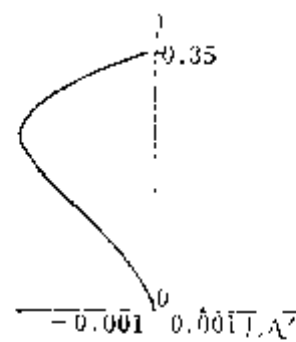
F.A. = $\pm 22^\circ$ **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|-----------|----------------|-------|----|----------|----------|----------------|-------|
| 1 | 1.03793 | 0.098094 | 1.71700 | 47.99 | 8 | 24.49210 | 0.101507 | 1.78831 | 47.37 |
| 2 | 10.42420 | 0.010372 | | | 9 | -0.58788 | 0.003249 | | |
| 3 | 0.43740 | 0.107949 | 1.78831 | 47.37 | 10 | -2.77625 | 0.090000 | 1.78831 | 47.37 |
| 4 | 0.71161 | 0.026819 | | | 11 | -0.61318 | 0.008258 | | |
| 5 | 1.07497 | 0.024892 | 1.68893 | 31.17 | 12 | 3.50851 | 0.054188 | 1.74400 | 44.77 |
| 6 | 0.31167 | 0.272222* | | | 13 | -4.03355 | | | |
| 7 | -0.35410 | 0.026556 | 1.72830 | 28.68 | | | | | |

$$0.272222^* = 0.140000 + 0.132222$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | $(IP(1\omega))$ |
|----------------|--------------|--------------|--------------|--------------|---------------------|-----------|-----------------|
| | -0.0029 | 0.000074 | 0.00077 | -0.0035 | -0.0039 | 0.39 | 1.61% |
| h 或 $\omega\%$ | LA' | ΔH' | \sqrt{t} | x'_s | $\lambda'_t - x'_s$ | K'_{F1} | $K'_{F0.7}$ |
| 100 | -0.00018 | -0.0064 | -0.0016 | -0.0024 | 0.00085 | | 0.0012 |
| 70 | -0.0027 | -0.0022 | -0.0015 | -0.0037 | 0.0022 | 0.0035 | 0.00053 |



编号: 02-00-112

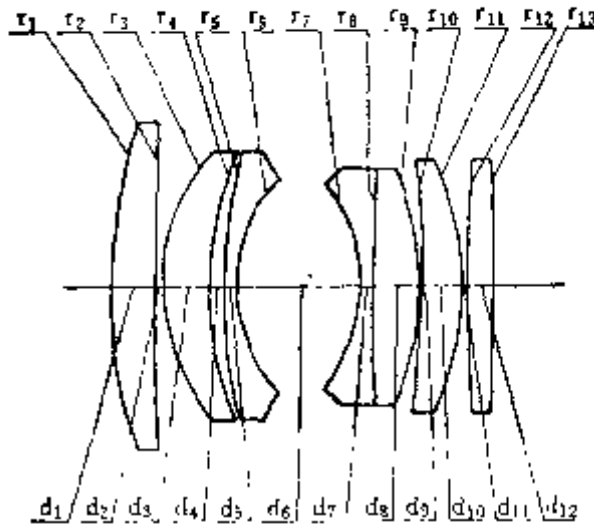
扩展的高斯型摄影物镜

E. F. L = 1

B. F. L = 0.70993

FNo. = 1.4

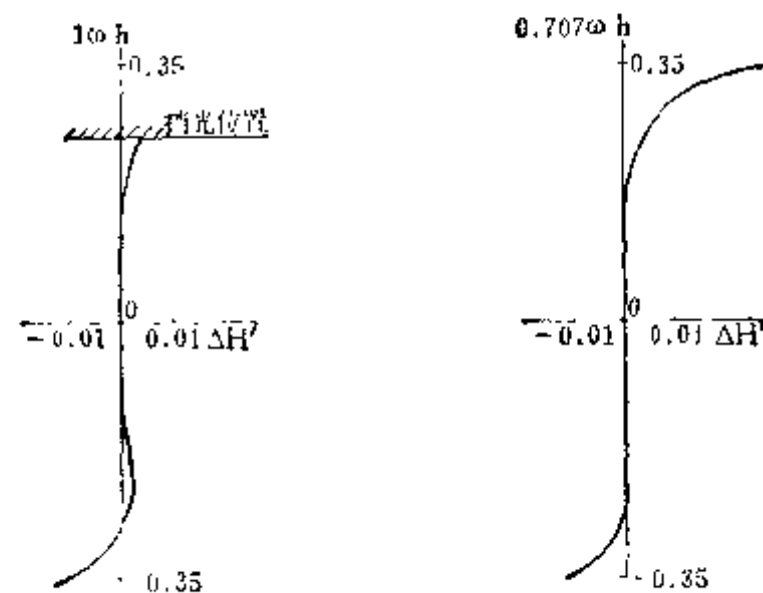
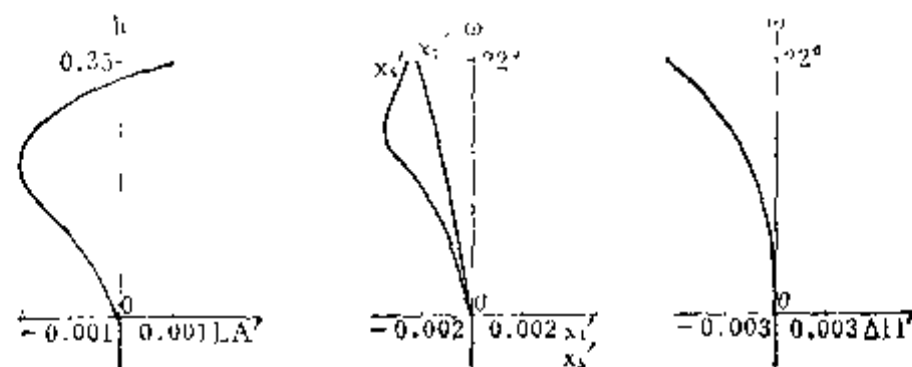
F. A. = $\pm 22^\circ$ **



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|-----------|----------------|-------|----|----------|----------|----------------|-------|
| 1 | 0.88904 | 0.101821 | 1.71700 | 47.99 | 8 | 7.48043 | 0.102998 | 1.78831 | 47.37 |
| 2 | 5.77321 | 0.001177 | | | 9 | -0.60714 | 0.005689 | | |
| 3 | 0.43607 | 0.097113 | 1.78831 | 47.37 | 10 | -1.74852 | 0.087696 | 1.78831 | 47.37 |
| 4 | 0.68124 | 0.031782 | | | 11 | -0.56500 | 0.002550 | | |
| 5 | 0.94172 | 0.023739 | 1.68893 | 31.17 | 12 | 3.29359 | 0.056698 | 1.74400 | 44.77 |
| 6 | 0.30648 | 0.285453* | | | 13 | -2.61618 | | | |
| 7 | -0.34637 | 0.022954 | 1.72830 | 28.68 | | | | | |

$$0.285453^* = 0.145453 + 0.140000$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1 ω) |
|----------------|--------------|--------------|--------------|--------------|---------------|-----------|------------------|
| | -0.0025 | -0.00014 | 0.00076 | -0.0033 | -0.0040 | 0.39 | -1.64% |
| h 或 $\omega\%$ | LA' | $\Delta H'$ | x_t' | x_s' | $x_t' - x_s'$ | K'_{11} | $K'_{r0.7}$ |
| 100 | 0.0010 | -0.0065 | -0.0021 | -0.0025 | 0.00035 | | 0.0016 |
| 10 | -0.0019 | -0.0023 | -0.0014 | -0.0035 | 0.0021 | 0.0080 | 0.00095 |



编号: 02-00-113

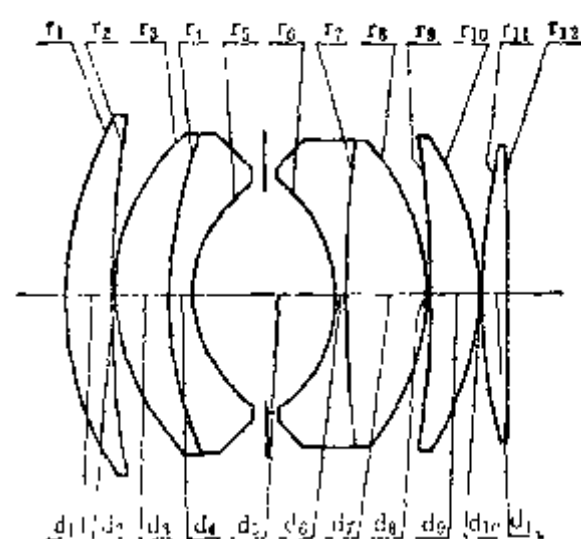
五组七片大孔径摄影镜头

E. F. L = 1

B. F. L = 0.6817

FN₀ = 1.1

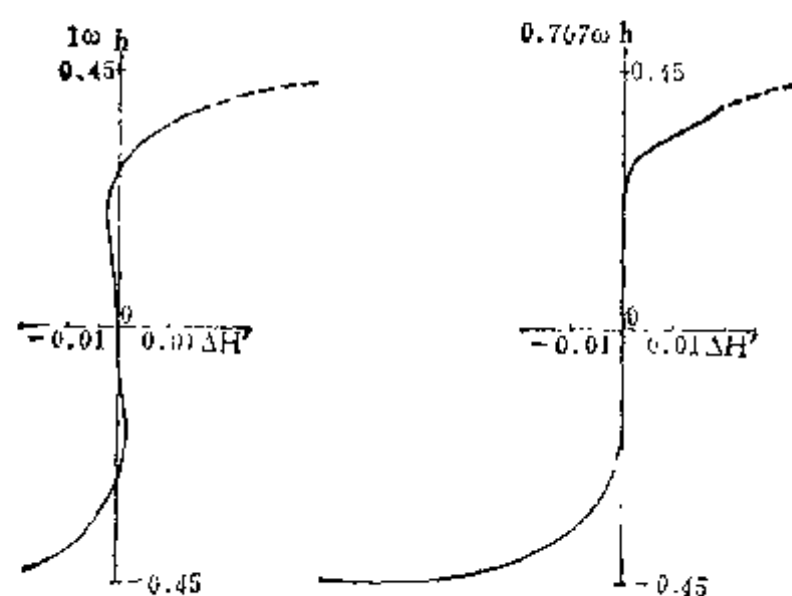
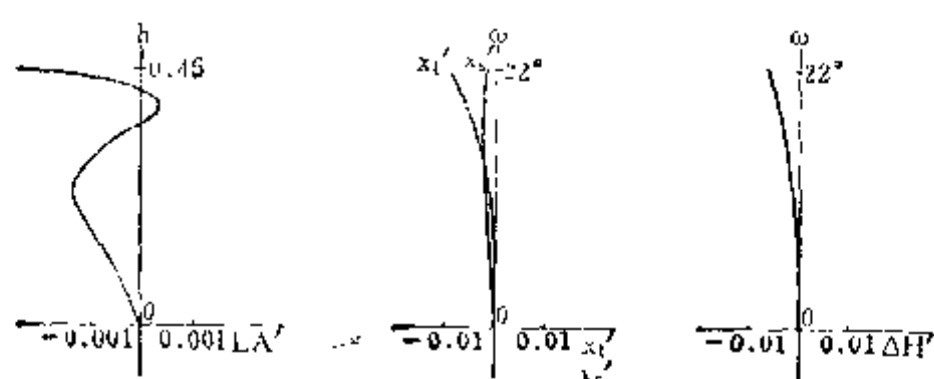
F. A. = ±22°



| 序号 | r | d | n _D | v | 序号 | r | d | n _D | v |
|----|----------|----------|----------------|------|----|-----------|---------|----------------|------|
| 1 | 0.82451 | 0.11203 | 1.80440 | 39.6 | 7 | 3.26151 | 0.19151 | 1.76200 | 40.2 |
| 2 | 2.61302 | 0.00181 | | | 8 | -0.55605 | 0.00181 | | |
| 3 | 0.51829 | 0.15191 | 1.75700 | 47.8 | 9 | -2.71114 | 0.12107 | 1.71300 | 53.9 |
| 4 | 0.99758 | 0.05782 | 1.71736 | 29.5 | 10 | -0.66134 | 0.00181 | | |
| 5 | 0.31233 | 0.33971* | | | 11 | 1.45848 | 0.06324 | 1.77390 | 50.6 |
| 6 | -0.34345 | 0.02710 | 1.78472 | 25.6 | 12 | -19.87641 | | | |

0.33971* = 0.17000 + 0.16971

| | ΣS ₁ | ΣS ₂ | ΣS ₃ | ΣS ₄ | ΣS ₅ | HU | QP (1ω) |
|--------|-----------------|-----------------|------------------|------------------|-------------------------------------|------------------|---------------------|
| | -0.0040 | -0.00056 | 0.00070 | -0.0039 | -0.0054 | 0.39 | -1.38% |
| h 或 ω% | LA' | ΔH' | x _t ' | x _s ' | x _t ' - x _s ' | K _H ' | K _{T0.7} ' |
| 100 | -0.0021 | -0.0033 | -0.0085 | -0.0020 | -0.0065 | 0.017 | -0.00003 |
| 70 | -0.0005 | -0.0022 | -0.0030 | -0.0027 | -0.00027 | 0.028 | 0.000024 |



编号: 02-00-114

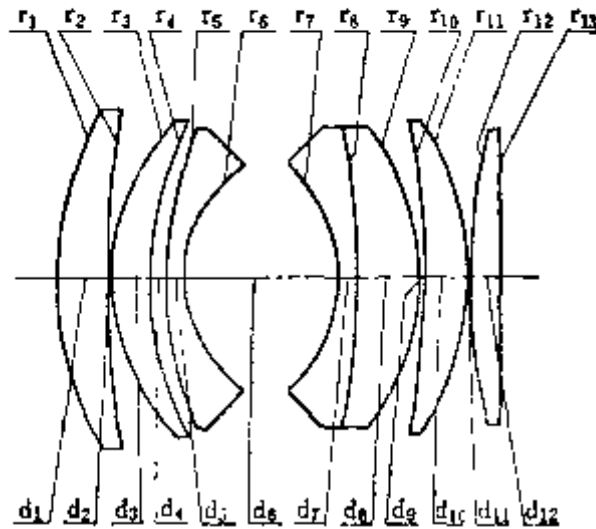
六组元大孔径摄影镜头

E. F. L = 1

B. F. L = 0.6899

FNo. = 1.2

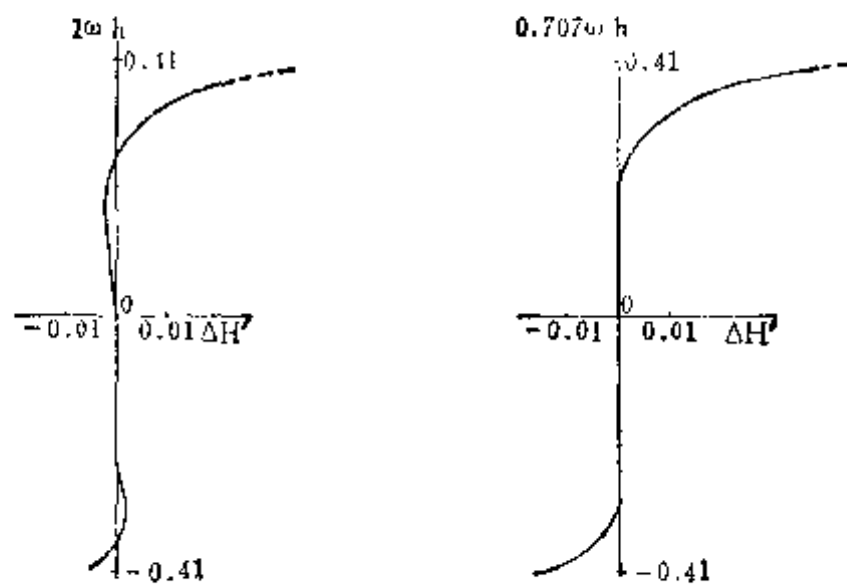
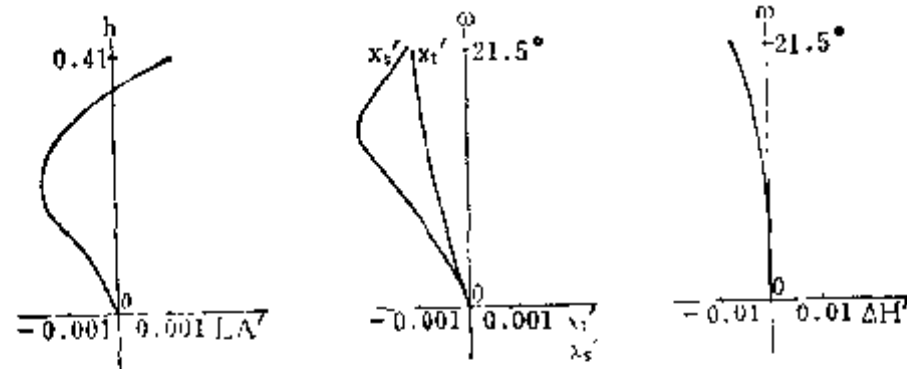
F. A. = $\pm 21.5^\circ$



| 序号 | r | d | n_D | v | 序号 | r | d | n_D | v |
|----|---------|---------|--------|------|----|----------|--------|--------|------|
| 1 | 0.7165 | 0.1103 | 1.8030 | 46.6 | 8 | -1.7781 | 0.1388 | 1.7550 | 52.4 |
| 2 | 2.5138 | 0.0021 | | | 9 | -0.5193 | 0.0018 | | |
| 3 | 0.4702 | 0.0890 | 1.8061 | 10.8 | 10 | -1.8394 | 0.1014 | 1.7130 | 53.9 |
| 4 | 0.7194 | 0.0347 | | | 11 | -0.5741 | 0.0021 | | |
| 5 | 0.8663 | 0.0320 | 1.7618 | 27.1 | 12 | 1.4655 | 0.0623 | 1.7130 | 53.9 |
| 6 | 0.2957 | 0.3413* | | | 13 | -16.6768 | | | |
| 7 | -0.3267 | 0.0320 | 1.7283 | 28.5 | | | | | |

$$0.3413^* = 0.1700 + 0.1713$$

| | ΣS_1 | ΣS_2 | ΣS_3 | ΣS_4 | ΣS_5 | HI | QP (1%) |
|----------------|--------------|--------------|--------------|--------------|--------------|-----------|------------------|
| | -0.0033 | -0.00041 | 0.00084 | -0.0033 | -0.0050 | 0.38 | -1.68% |
| h 或 $\omega\%$ | LA' | $\Delta H'$ | λ_1' | λ_2' | λ_3' | K_{11}' | $\lambda_{0.7}'$ |
| 100 | 0.0011 | -0.0065 | -0.0041 | -0.0012 | 0.000075 | 0.027 | 0.001 |
| 79 | -0.0011 | -0.0023 | -0.00088 | -0.0023 | 0.0015 | 0.033 | 0.0018 |



[G e n e r a l I n f o r m a t i o n]

书名= 光学镜头手册 第二册

作者=

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四组元大孔径高斯物镜
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五片式物镜
放大镜
放大镜
高斯型物镜
高斯型摄影物镜
反远距型物镜
大孔径广角摄影镜头
扩展的高斯型摄影物镜
扩展的高斯型摄影物镜
五组七片大孔径摄影镜头
六组元大孔径摄影镜头

校正了象差的照相机镜头
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