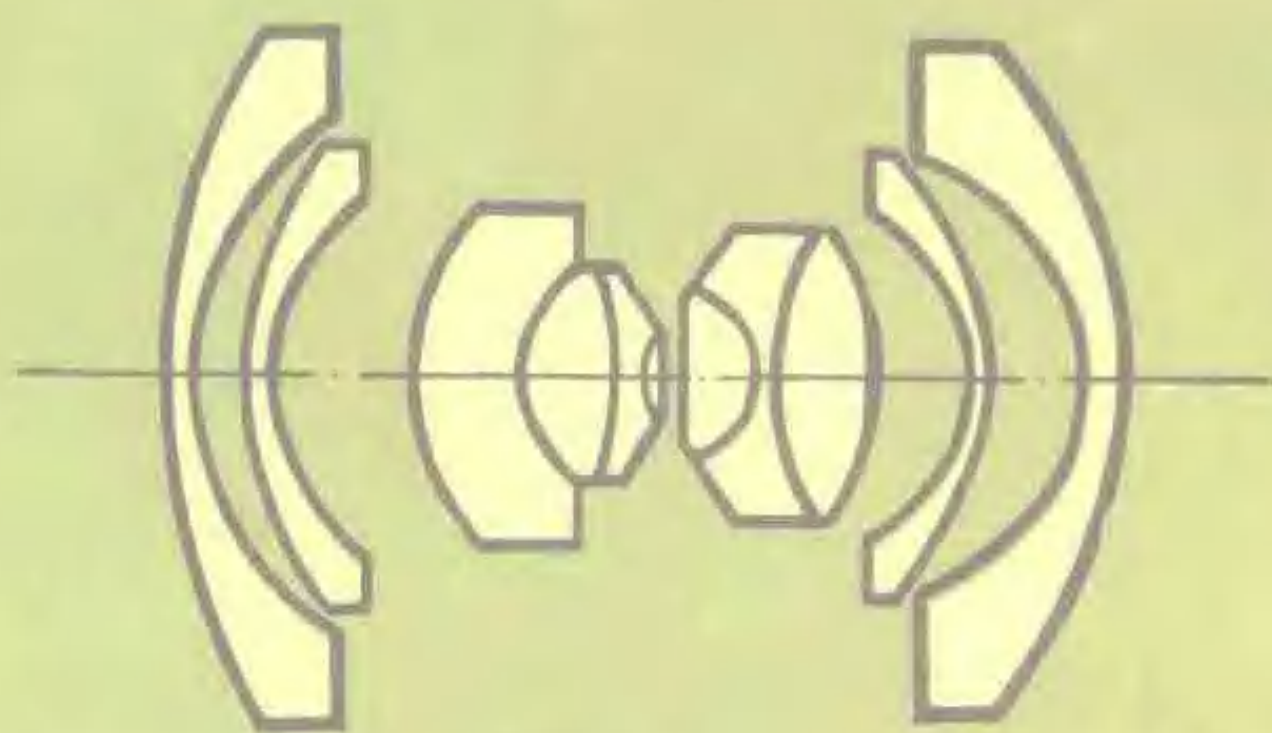


光学镜头手册 第三册

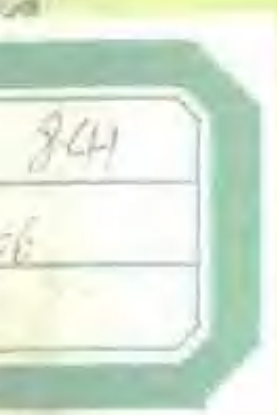
# 光学镜头手册

## 第三册

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



R 79.841

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# 光学镜头手册

第三册

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年到现在历年来的光学镜头资料。

本书是手册的第三册，内容为广角物镜，共100个。每个镜头均附有光学镜头的结构图，各种主要参数及象差曲线图（其中092~100号镜头，未给出象差曲线）。

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

#### 第 三 册

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被设计和试制出来,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 optical 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,陆续出版。

原资料中,大多没有给出象差曲线图,我们均重新计算给予补上。但本册中有少部分镜头(03-02-092~03-02-100)因我单位计算机无法计算,故未能给出象差曲线。此外,由于原资料的光阑位置大多没有给出,我们计算时只能根据我们主观给定的光阑位置进行计算,因此相应的象差曲线图仅供参考。

本册的内容为广角物镜。

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会存在不少缺点和错误,分类也可能不完全合理,望读者批评指正。

参加本册编译工作的有林茂智、杨魁田、叶恩霖、刘淑栓等四位同志。

编译者

# 目 录

符号说明.....	1
广角镜头.....	2
超广角摄影镜头.....	3
超广角摄影镜头.....	4
广角镜头.....	5
超广角镜头.....	6
超广角镜头.....	7
反远距型广角摄影镜头.....	8
反远距型广角摄影镜头.....	9
广角摄影镜头.....	10
反远距型广角照相机镜头.....	11
反远距型广角照相机镜头.....	12
大孔径长后截距广角镜头.....	13
广角摄影镜头.....	14
广角摄影镜头.....	15
广角物镜.....	16
大孔径长后截距广角镜头.....	17
反远距型广角物镜.....	18
三片式广角物镜.....	19
三片式超广角物镜.....	20
广角物镜.....	21
广角物镜.....	22
反远距型超广角照相机镜头.....	23
反远距型广角照相机镜头.....	24
反远距型广角镜头.....	25
反远距型广角镜头.....	26
反远距型广角镜头.....	27
反远距型超广角镜头.....	28
广角物镜.....	29
超广角摄影物镜.....	30
广角摄影物镜.....	31
大孔径广角摄影物镜.....	32
大孔径广角摄影物镜.....	33

长后截距广角物镜·····	34
长后截距超广角物镜·····	35
广角摄影物镜·····	36
超广角镜头·····	37
超广角镜头·····	38
大孔径超广角镜头·····	39
大孔径超广角镜头·····	40
反远距型广角镜头·····	41
反远距型超广角物镜·····	42
反远距型超广角物镜·····	43
反远距型超广角物镜·····	44
反远距型广角镜头·····	45
超广角摄影物镜·····	46
超广角摄影物镜·····	47
具有长后截距的超广角物镜·····	48
大孔径超广角镜头·····	49
大孔径广角镜头·····	50
具有长后截距的超广角物镜·····	51
具有长后截距的小型广角物镜·····	52
超广角摄影物镜·····	53
八片式广角物镜·····	54
八片式广角物镜·····	55
广角物镜·····	56
摄影或电影摄影用的广角物镜·····	57
改进的对称式广角物镜·····	58
反远距型物镜·····	59
广角摄影物镜·····	60
两组元超广角摄影物镜·····	61
小型的超广角照相机物镜·····	62
小型的超广角照相机物镜·····	63
反远距型物镜·····	64
反远距型物镜·····	65
广角物镜·····	66
四组元超广角照相机物镜·····	67
广角镜头·····	68
超广角镜头·····	69
超广角镜头·····	70
广角镜头·····	71

广角镜头.....	72
大孔径广角摄影物镜.....	73
大孔径广角摄影物镜.....	74
广角镜头.....	75
超广角镜头.....	76
广角物镜.....	77
反远距型物镜.....	78
大孔径摄影物镜.....	79
大孔径摄影物镜.....	80
广角物镜.....	81
广角物镜.....	82
改进的高斯型五片式摄影镜头.....	83
超广角镜头.....	84
超广角镜头.....	85
广角物镜.....	86
广角摄影物镜.....	87
五组元超广角物镜.....	88
五组元超广角物镜.....	89
高斯型四组元广角物镜.....	90
高斯型四组元广角物镜.....	91
摄影或电影摄影用的大孔径广角物镜.....	92
超广角镜头.....	93
超广角鱼眼镜头.....	93
超广角鱼眼镜头.....	94
消色差超广角镜头.....	94
超广角镜头.....	95
超广角摄影镜头.....	95
超广角镜头.....	96
八片式超广角镜头.....	97
八片式超广角镜头.....	98

编号: 03-02-001

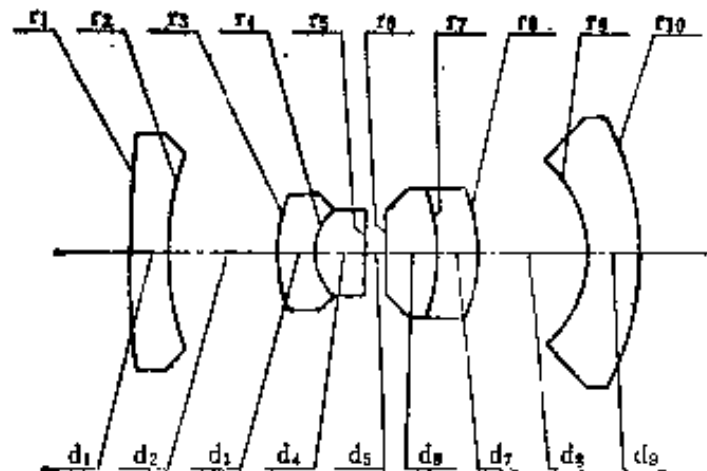
# 广 角 镜 头

E.F.L=100

B.F.L=53.35

FN<sub>0</sub>. = 11

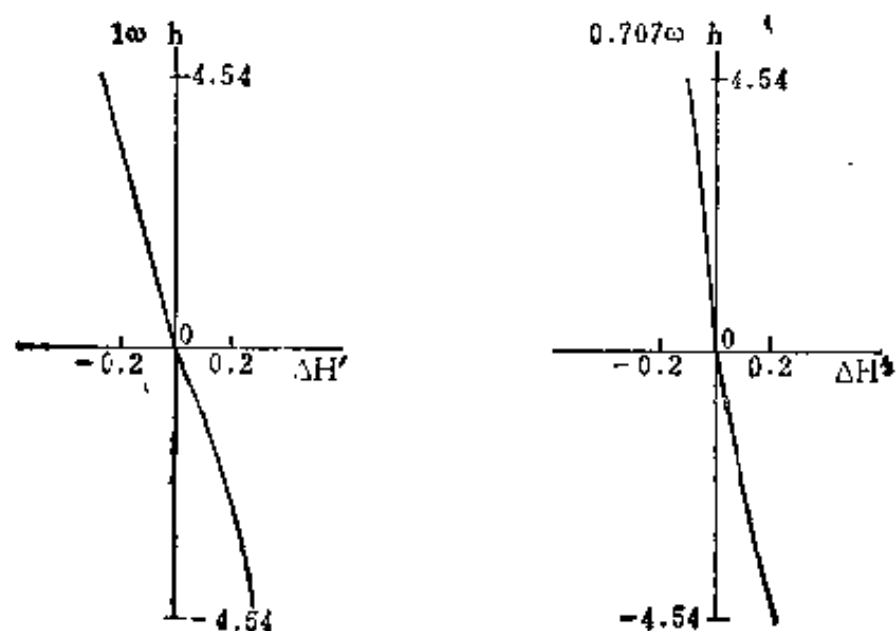
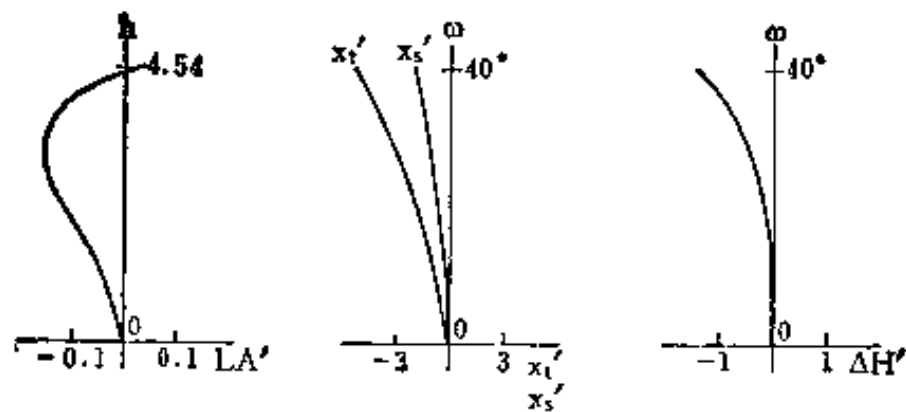
F.A. = ± 40°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	585.51	7.69	1.61375	56.4	6	-64.54	10.77	1.81600	46.8
2	52.68	23.08			7	-39.80	8.46	1.80518	25.4
3	26.50	7.69	1.74400	44.8	8	-41.68	23.08		
4	12.27	10.77	1.60729	59.4	9	-25.89	10.77	1.72825	28.5
5	-869.76	4.62*			10	-62.57			

4.62\* = 2.31 + 2.31

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1ω)
	-0.00244	0.00293	-0.00338	-0.00229	-0.06040	84.6	-1.7%
h 或 ω %	LA'	ΔH'	x' <sub>1</sub>	x' <sub>2</sub>	x' <sub>1</sub> - x' <sub>2</sub>	K <sub>T1</sub>	K <sub>T0.7</sub>
100	0.031	-1.406	-5.336	-1.940	-3.395	0.008	0.015
70	-0.158	-0.356	-3.103	-1.308	-1.795	0.074	0.044





编号: 03-02-002

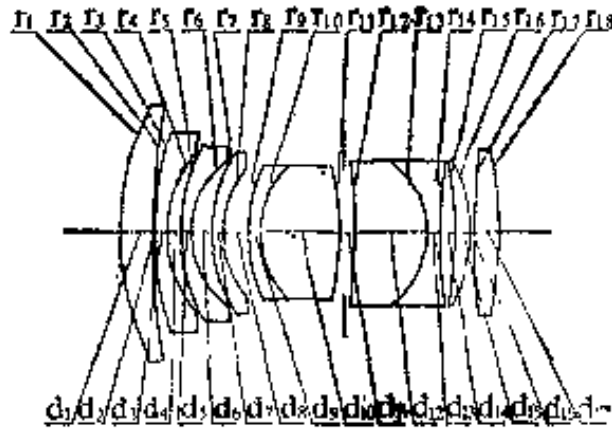
# 超 广 角 摄 影 镜 头

E.F.L = 106

B.F.L = 168.07

FN<sub>0</sub> = 2

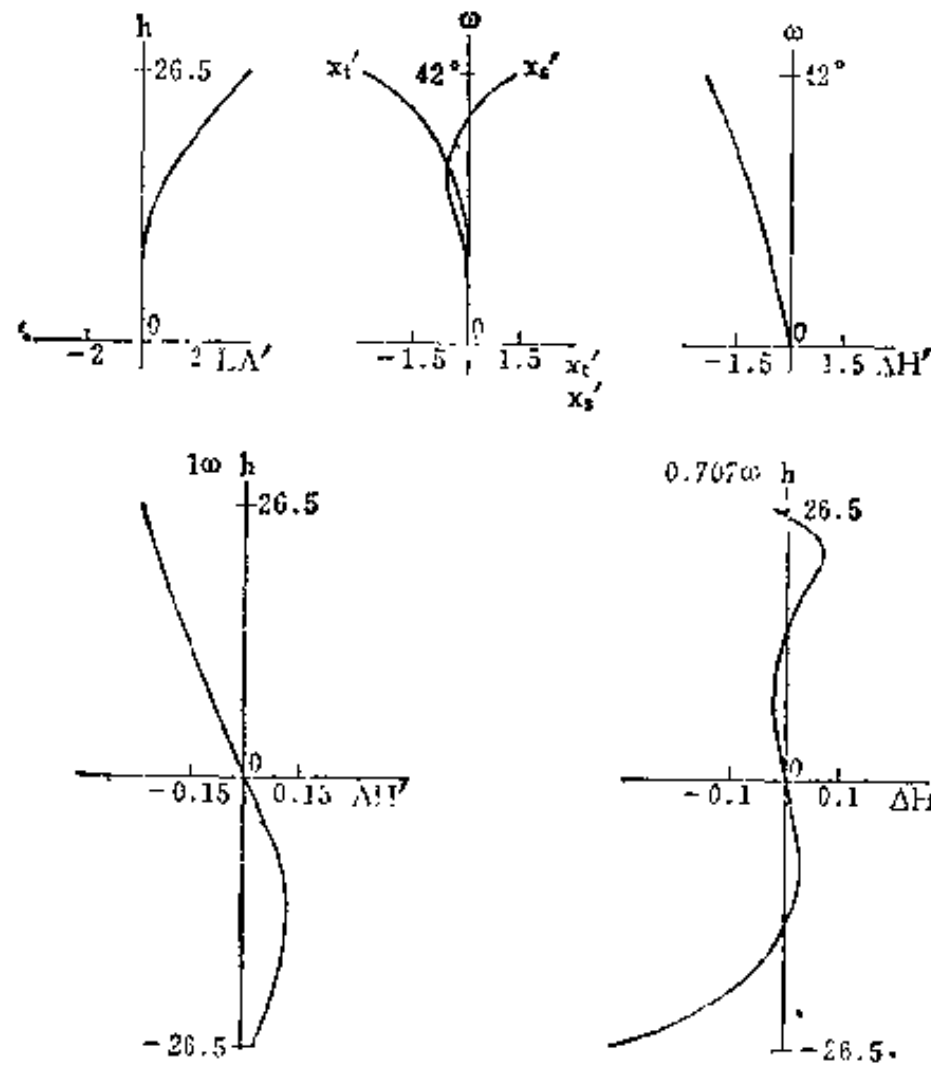
F.A. = ± 42°



序号	r	d	n	v	序号	r	d	n	v
1	171.815	20.41	1.757	47.9	10	56.518	46.94	1.596	39.2
2	529.953	0.82			11	-237.280	9.80*		
3	206.162	7.35	1.620	60.3	12	-442.731	42.86	1.773	49.6
4	73.791	8.16			13	-51.983	6.53	1.689	31.1
5	119.366	6.12	1.620	60.3	14	229.59	9.18		
6	54.314	11.84			15	-238.402	11.22	1.697	35.6
7	91.723	6.12	1.670	57.3	16	-88.571	0.82		
8	60.836	14.29			17	374.903	15.51	1.697	55.8
9	96.534	6.12	1.773	49.6	18	-229.223			

9.80\* = 4.90 + 4.90

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	0.0643	-0.0228	0.0509	-0.2725	-1.8404	96.0	-2.6%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	3.845	-2.489	-2.939	1.328	-4.267	-0.143	-0.063
70	1.430	-1.612	-0.584	-0.699	0.115	-0.178	-0.007



编号: 03-02-004

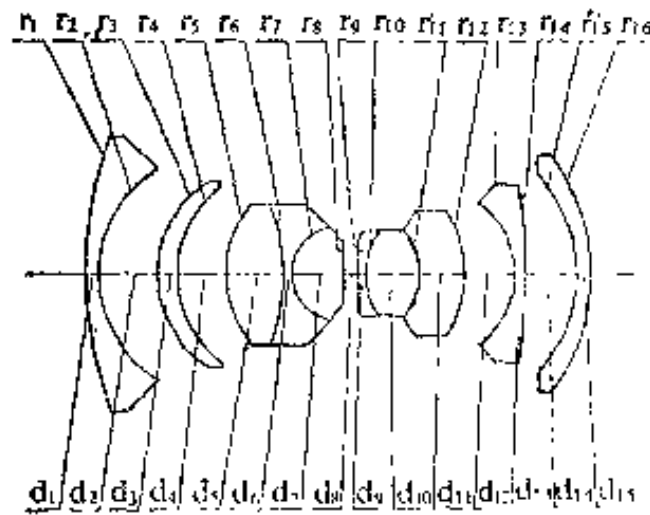
# 广 角 镜 头

E.F.L = 100

B.F.L = 34.416

FNo. = 8

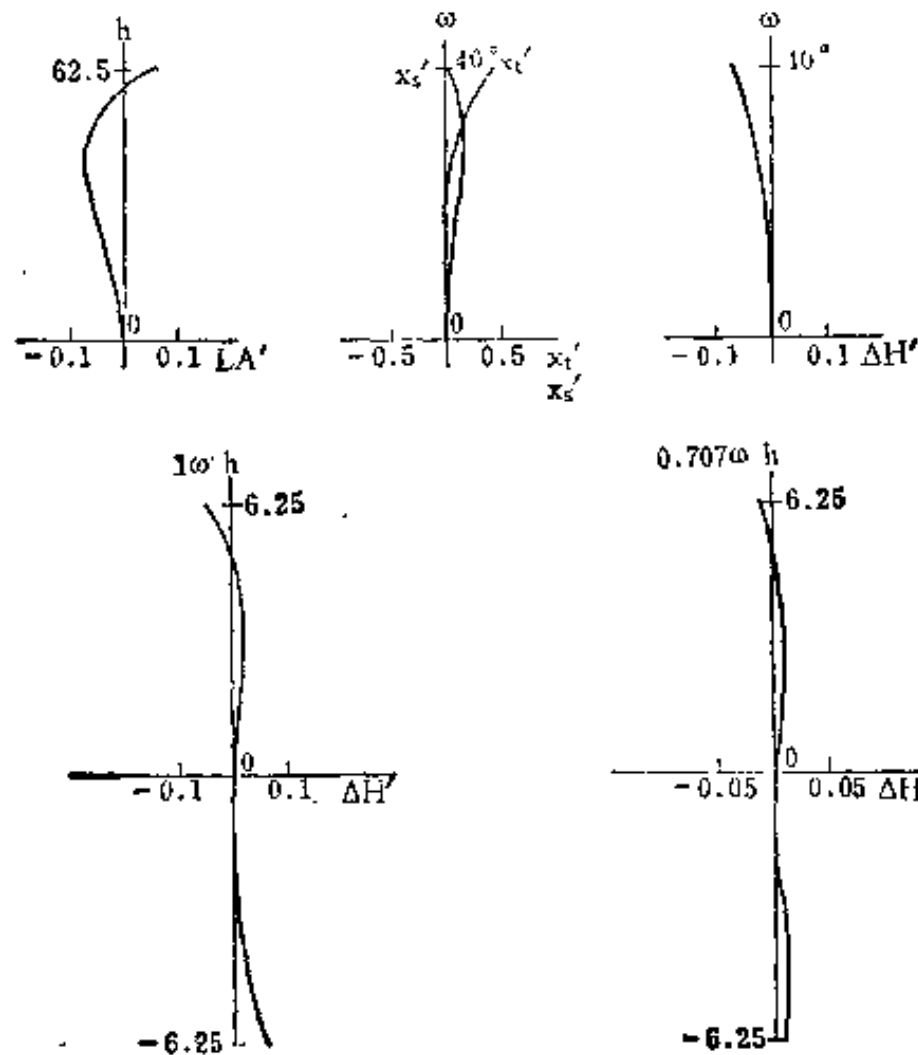
F.A. =  $\pm 40^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	170.00	4.53	1.51633	64.1	9	738.87	3.08	1.57135	52.9
2	46.44	21.54			10	30.50	20.70	1.69350	53.3
3	39.80	7.69	1.51033	64.1	11	-22.85	16.92	1.80518	25.4
4	40.72	18.77			12	-41.76	18.46		
5	44.48	20.00	1.69700	48.5	13	-32.43	4.15	1.51633	64.1
6	-70.42	3.08	1.72000	43.7	14	-257.17	18.46		
7	17.44	20.00	1.58215	42.1	15	-53.93	4.95	1.51633	64.1
8	215.37	4.62*			16	-73.63			

4.62\* = 2.31 + 2.31

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00230	-0.00144	-0.00294	0.00666	-0.00602	83.9	-0.0777%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_2$	$x'_3$	$-x'_1 - x'_2$	$K'_{11}$	$h'_{F0.7}$
100	0.047	-0.065	0.436	-0.027	0.457	-0.004	0.009
70	-0.069	-0.017	0.069	0.170	-0.078	-0.006	0.001



编号: 03-02-006

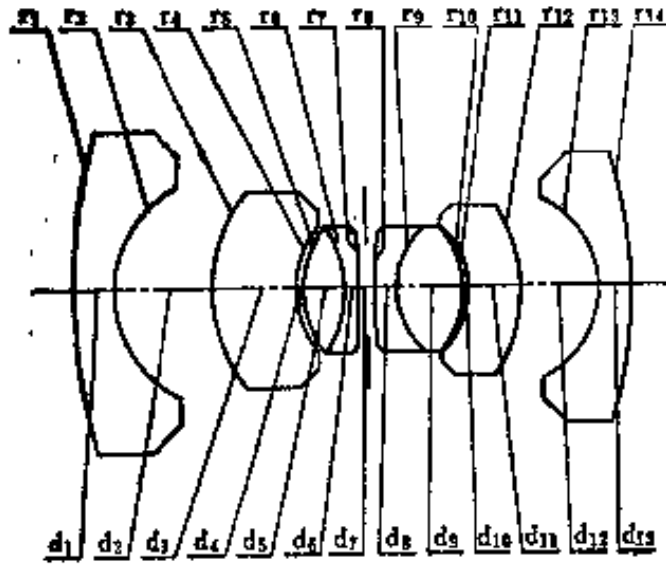
# 超 广 角 镜 头

E.F.L=100

B.F.L=32.71

FNo.=2.8

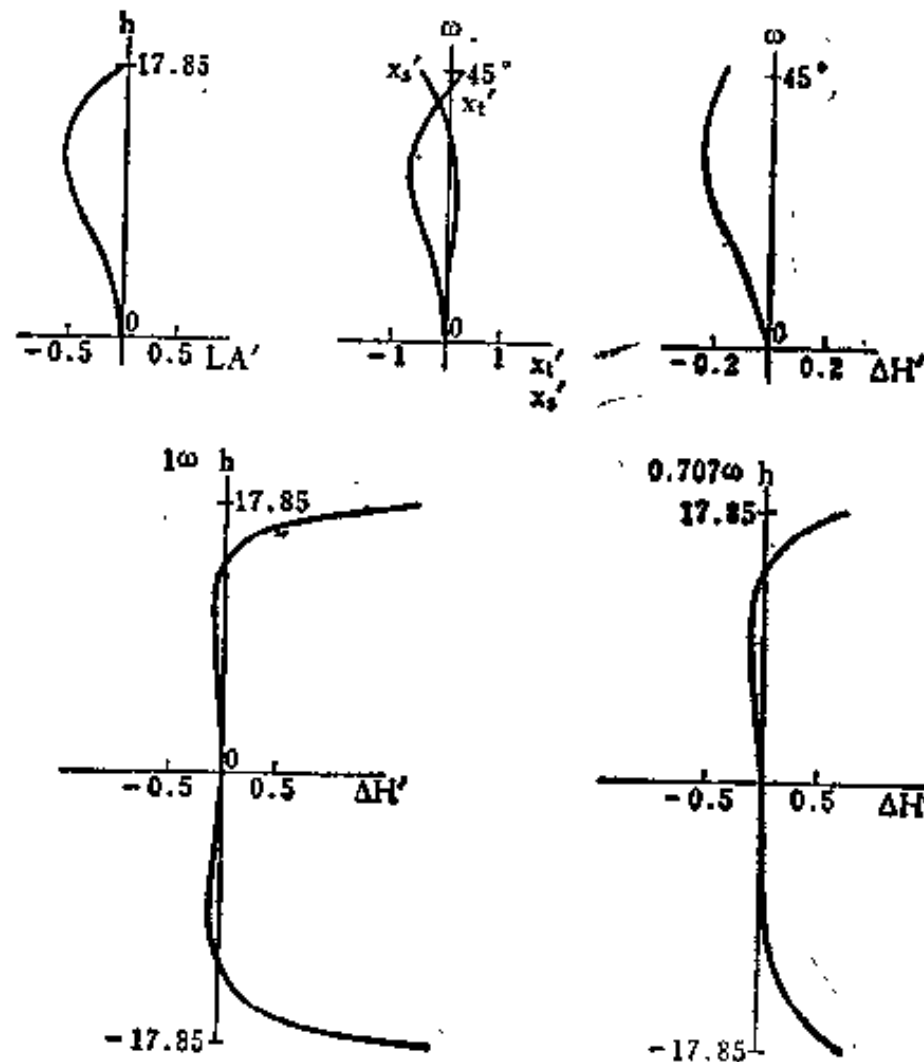
F.A.= $\pm 45^\circ$



序号	$r$	$d$	$n_d$	$v$	序号	$r$	$d$	$n_d$	$v$
1	267.00	17.00	1.49388	66.1	8	893.84	9.55	1.47069	67.3
2	48.21	40.80			9	34.85	27.00	1.55753	67.3
3	87.64	35.16	1.66998	39.2	10	-41.60	0.70		
4	40.75	3.04			11	-36.87	24.10	1.85000	29.0
5	45.25	16.90	1.67790	55.5	12	-63.54	32.00		
6	-48.00	6.80	1.56138	45.3	13	-42.55	12.50	1.51823	59.0
7	-715.00	5.76*			14	-199.70			

5.76\* = 3.00 + 2.76

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.127	-0.064	-0.110	0.103	-0.298	100	-0.17%
$h$ 或 $\omega$ %	$LA'$	$\Delta H'$	$x'_t$	$x_s$	$x'_t - x'_s$	$K'_{T1}$	$K'_{T0.7}$
100	-0.024	-0.172	0.188	-0.527	0.715	1.855	-0.065
70	-0.579	-0.268	-0.714	0.010	-0.724	0.829	0.015



编号: 03-02-007

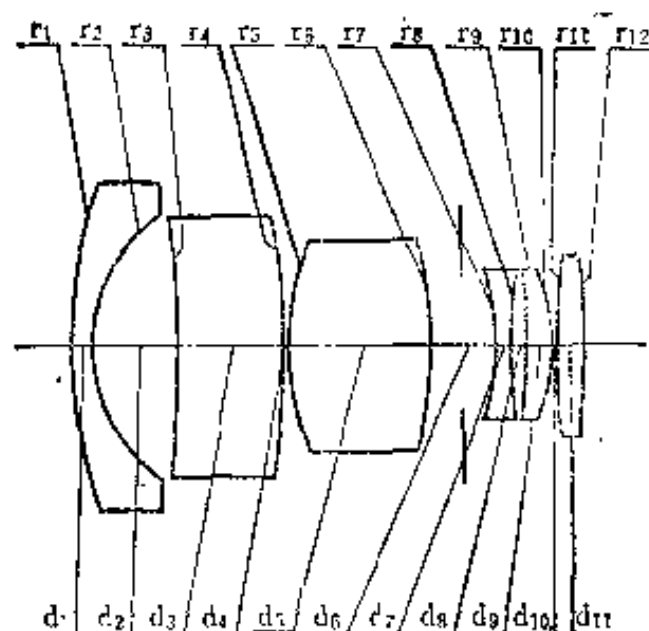
## 反远距型广角摄影镜头

E.F.L = 100

B.F.L = 107.292

FNo. = 2.8

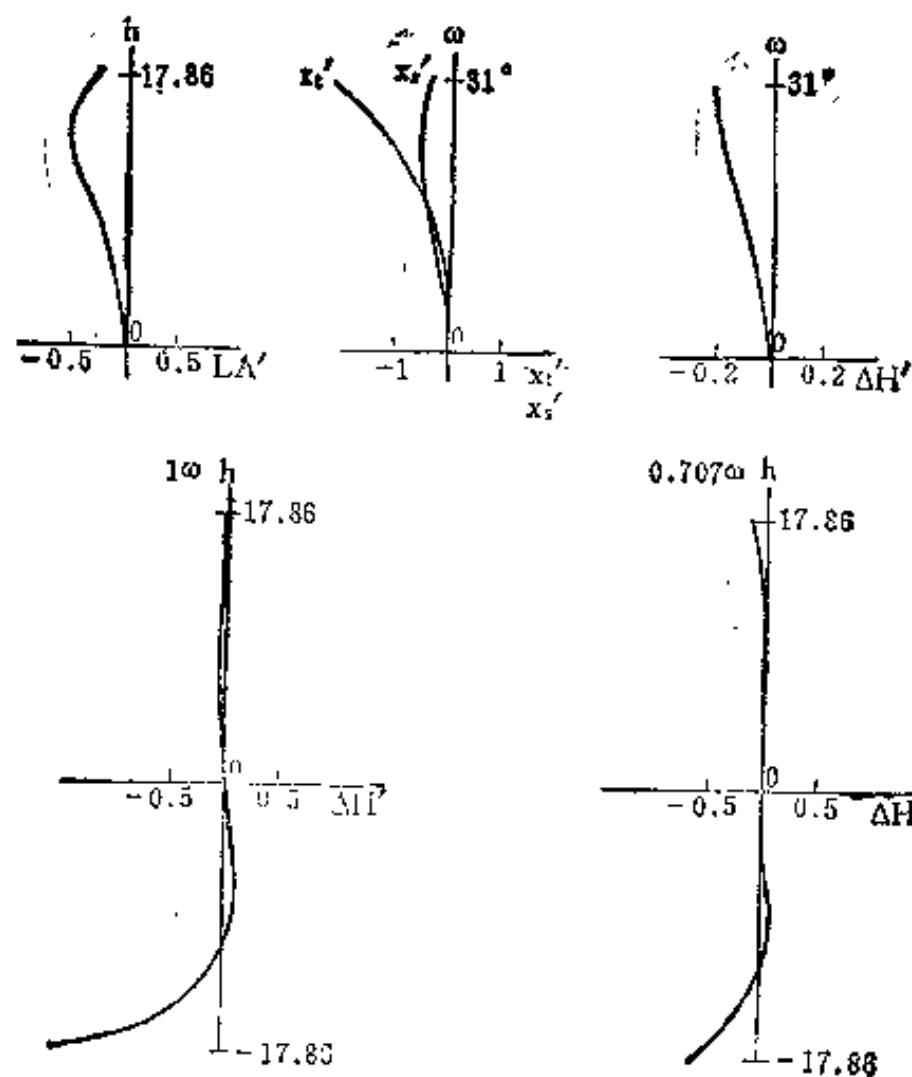
F.A. =  $\pm 31^\circ$



序号	r	d	n	$v_d$	序号	r	d	n	$v_d$
1	133.333	5.536	1.51154	64.6	7	-57.023	4.167	1.71736	29.5
2	42.083	22.222			8	137.367	3.750		
3	-258.333	27.778	1.51680	64.2	9	-123.611	7.500	1.74443	18.4
4	-233.333	0.278			10	-49.167	0.278		
5	73.056	37.500	1.71300	53.9	11	277.778	6.914	1.62041	60.3
6	-133.889	17.222*			12	-188.669			

$$17.222^* = 8.611 + 8.611$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HM	QF(1 $\omega$ )
	-0.0892	0.0238	0.0129	-0.1185	-0.2312	60.1	-0.39%
h 或 $\omega$ %	LA'	$\Delta H'$	$x_1$	$x_2$	$x_1' x_2'$	$K_{f1}$	$K_{f0.7}$
100	-0.317	-0.234	-2.251	-0.365	-1.886	-0.836	-0.110
70	-0.486	-0.191	-0.772	-0.655	-0.117	-0.386	-0.049



编号: 03-02-008

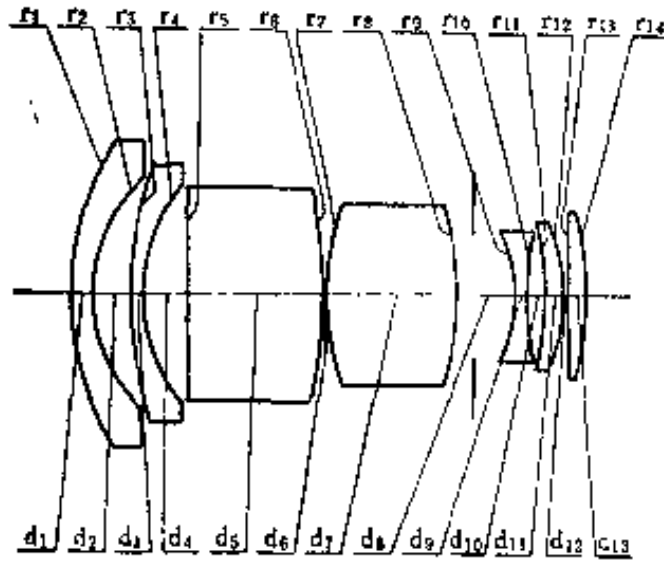
# 反远距型广角摄影镜头

E.F.L=100

B.F.L=131.5

FNo.=2.8

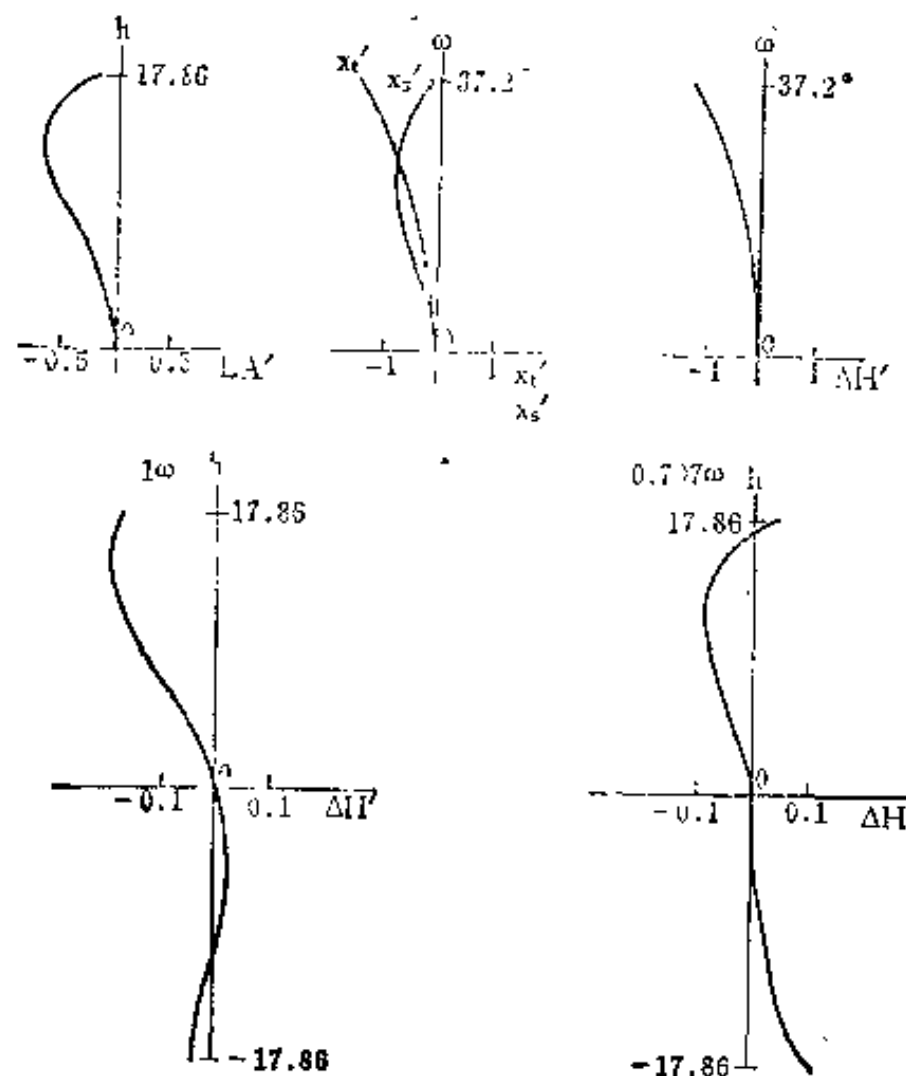
F.A.=±37.2°



序号	r	d	n	$v_d$	序号	r	d	n	$v_d$
1	125.874	9.090	1.62280	56.9	8	-150.350	24.126*		
2	64.685	15.035			9	-65.909	6.294	1.72825	28.3
3	150.350	6.294	1.62280	56.9	10	186.713	5.245		
4	70.979	18.182			11	-174.825	9.441	1.62041	60.3
5	-2844.060	56.613	1.51680	64.2	12	-64.685	0.350		
6	-258.741	0.350			13	1748.252	7.343	1.62041	60.3
7	113.986	54.195	1.71700	47.9	14	-91.928			

24.126\* = 12.000 + 12.126

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1°)
	-0.1297	0.0087	0.0249	-0.1574	-0.5513	75.4	~1.7%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{T1}$	$K'_{T0.7}$
100	-0.205	-1.291	-1.810	-0.094	-1.516	-0.107	~0.098
70	-0.679	-0.619	-0.628	-0.833	0.206	0.008	-0.028



编号: 03-02-009

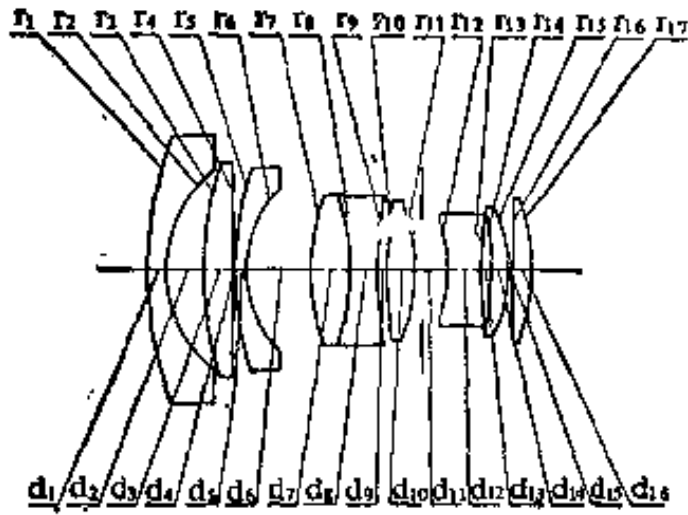
# 广角摄影镜头

E.F.L=99.3

B.F.L=133.4

FNo.=2

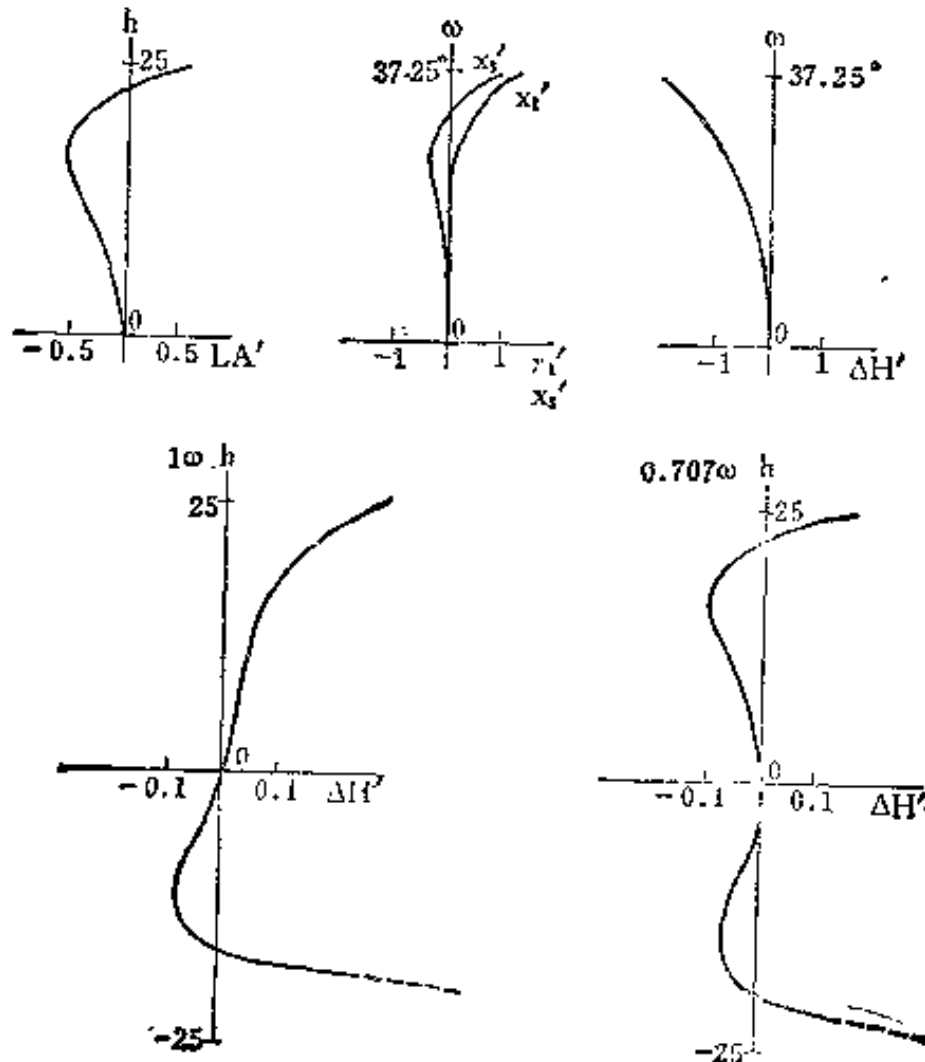
F.A.=±37.25°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	227.238	11.189	1.62299	58.1	10	297.203	17.483	1.51686	64.2
2	76.224	22.727			11	-106.388	20.280*		
3	237.762	16.434	1.74400	44.9	12	-67.133	18.881	1.78470	26.1
4	5956.748	0.350			13	253.497	4.895		
5	213.252	6.993	1.62299	58.1	14	-244.755	11.888	1.74443	47.9
6	63.986	38.461			15	-76.923	0.350		
7	117.098	23.427	1.77259	19.5	16	875.524	12.238	1.71306	53.9
8	-134.266	15.743	1.51686	64.2	17	-127.295			
9	321.241	5.245							

20.280\* = 8.000 + 12.280

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1ω)
	-0.316	-0.092	0.074	-0.266	-1.026	75.5	-2.8%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>2</sub> ' - x <sub>1</sub> '	K <sub>F1</sub>	K <sub>F0.7</sub>
100	0.587	-2.119	1.249	0.983	0.266	1.450	0.109
70	-0.591	-0.863	0.032	-0.444	0.476	0.694	-0.081



编号: 03-02-010

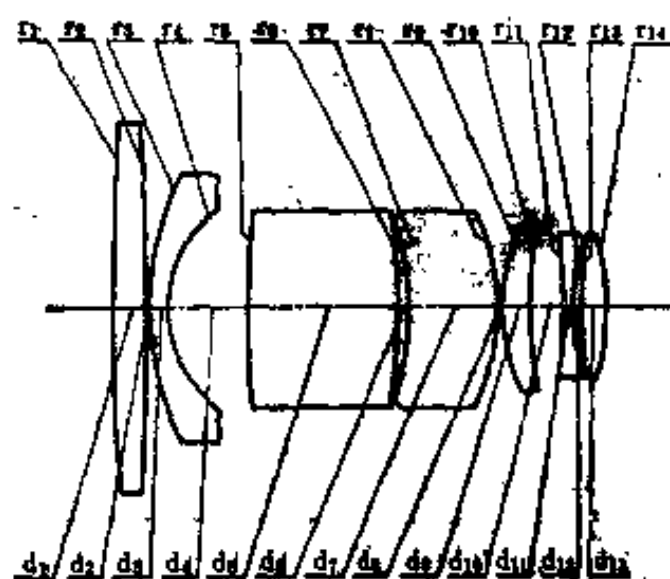
# 反远距型广角照相机镜头

E.F.L=100

B.F.L=136

FNo.=3.5

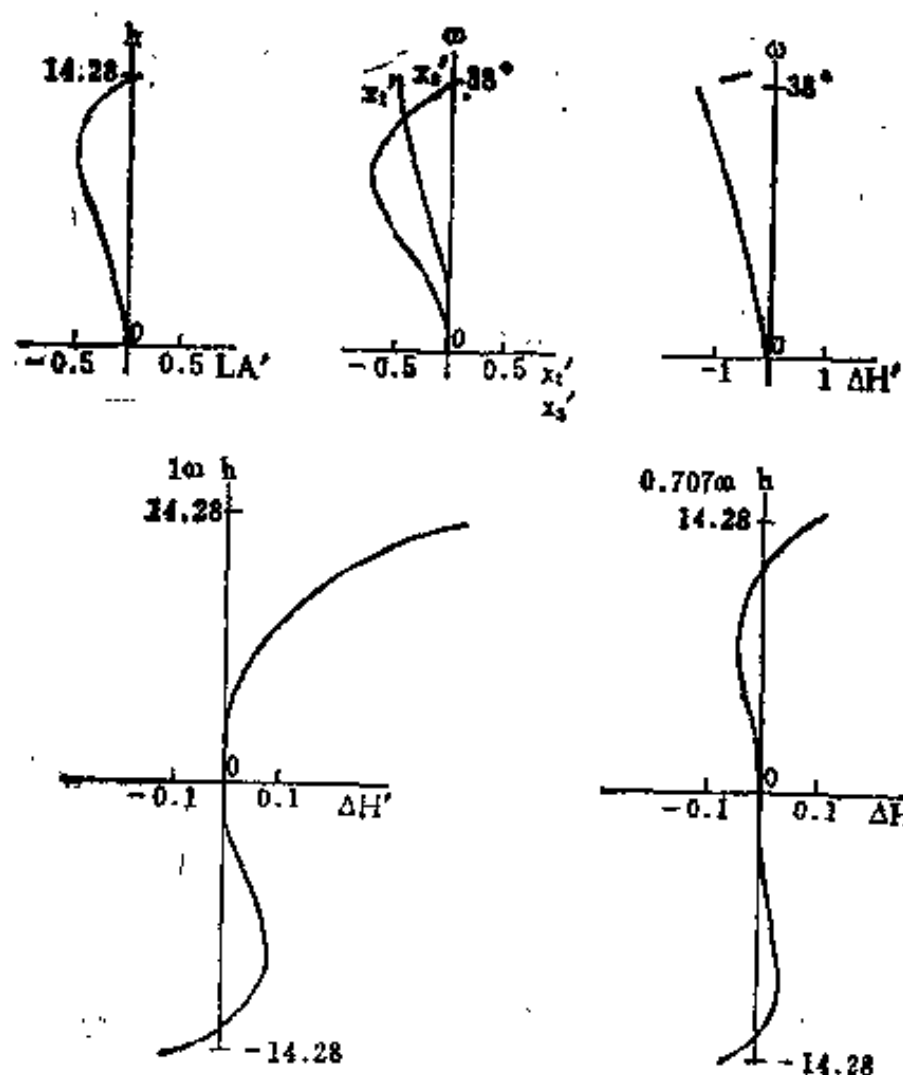
F.A.=±38°



序号	r	d	n	v	序号	r	d	n	v
1	1931.008	10.04	1.66672	48.3	8	-71.029	0.71		
2	-1186.038	0.71			9	58.017	10.11	1.66672	48.3
3	98.327	5.89	1.62041	60.2	10	123.080	10.36*		
4	40.104	25.58			11	-166.131	3.11	1.71736	29.5
5	364.602	47.27	1.51633	64.0	12	70.417	2.32		
6	-207.110	2.50			13	256.417	8.04	1.71300	53.9
7	-85.750	27.78	1.71300	53.9	14	-73.019			

10.36\* = 5.18 + 5.18

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0643	0.0023	0.0029	-0.0833	-0.6349	78.3	-2%
h 或 $\omega$ %	LA'	$\Delta H'$	$x_1'$	$x_2'$	$x_3' - x_2'$	$K_{F1}'$	$K_{1.0.7}'$
100	0.039	-1.535	-0.513	0.018	-0.531	0.156	0.111
70	-0.479	-0.902	-4.362	-0.730	0.368	0.011	0.004



编号: 03-02-012

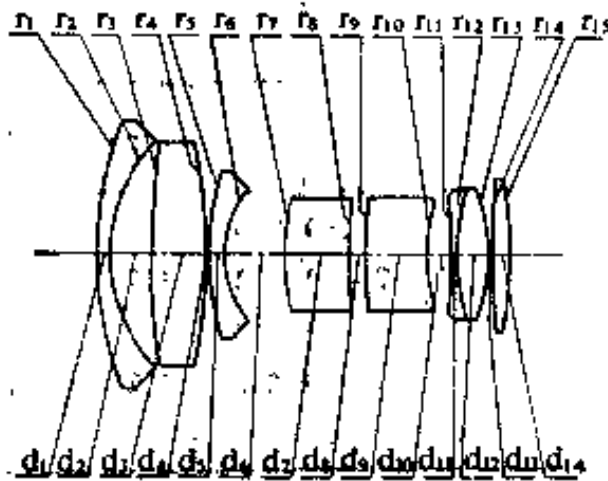
# 大孔径长后截距广角镜头

E.F.L=100

B.F.L=137.5

FNo.=2

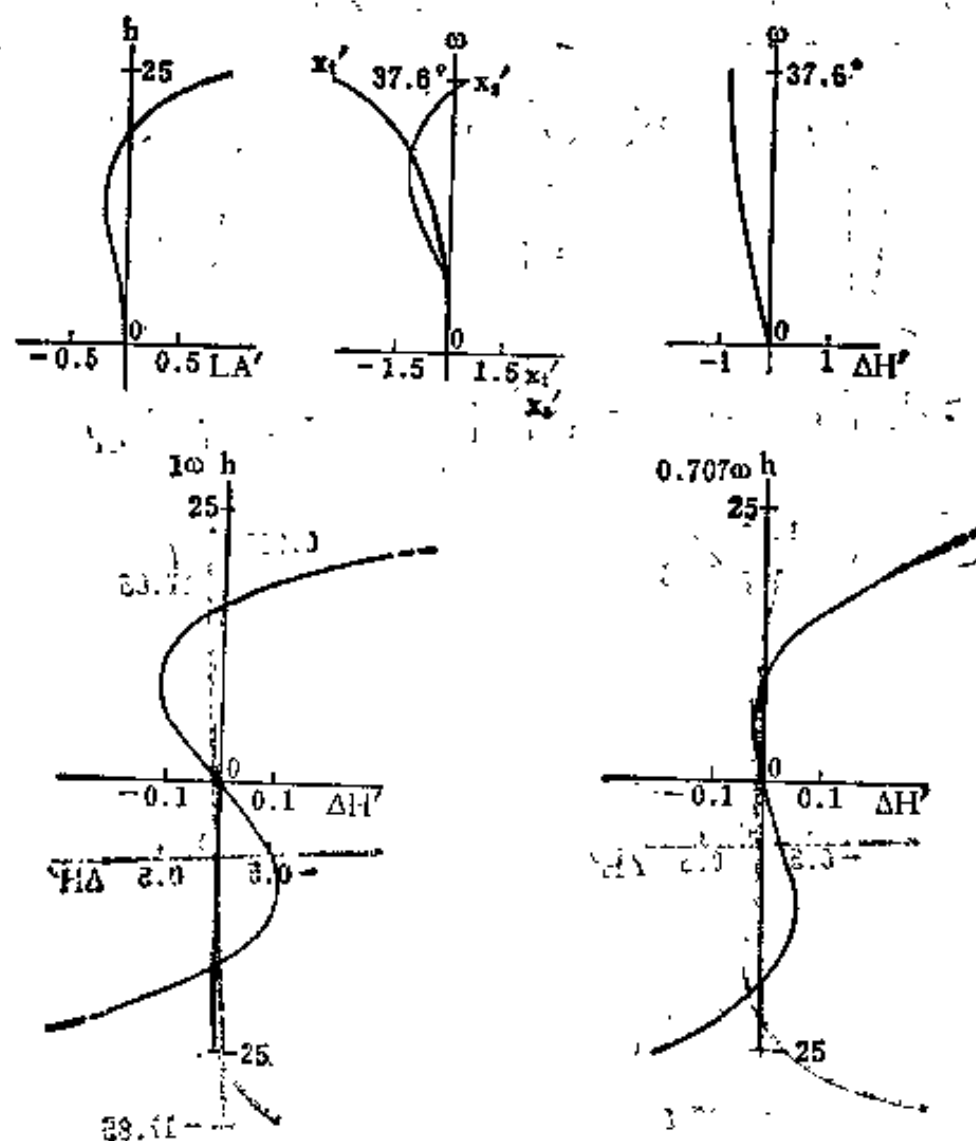
F.A.=±37.6°



序号	r	d	n <sub>D</sub>	v	序号	r	d	n <sub>D</sub>	v
1	231.5	8.0	1.64000	60.2	9	270.2	38.1	1.80518	25.4
2	85.8	26.9			10	109.6	15.5		
3	974.8	34.5	1.80610	40.8	11	382.9	4.2	1.80518	25.4
4	-330.0	0.4			12	122.3	19.1	1.80300	46.7
5	202.8	8.5	1.62031	60.3	13	103.9	0.4		
6	60.2	36.4			14	888.1	10.3	1.80300	46.7
7	118.9	41.7	1.81554	44.5	15	249.0			
8	7148.9	8.8*							

\* 8.8\* = 4.4 + 4.4

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1ω)
	-0.1576	0.0493	0.0648	-0.3785	-1.0887	76.1	-1.1%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>r1</sub>	K <sub>r0.7</sub>
100	0.876	-0.874	-3.474	0.330	-3.804	0.092	0.034
70	-0.164	-0.790	-0.799	-1.006	0.207	0.144	0.097





编号: 03-02-013

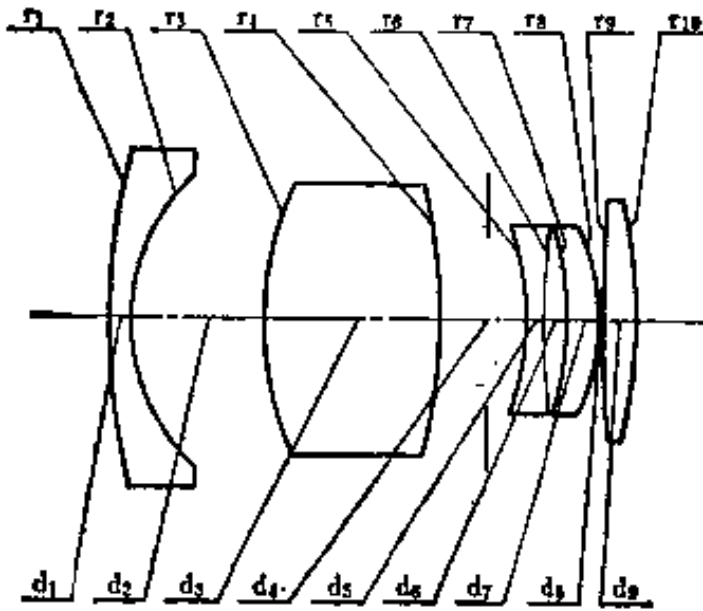
# 广角摄影镜头

E.F.L=100

B.F.L=107.345

FNo.=2.8

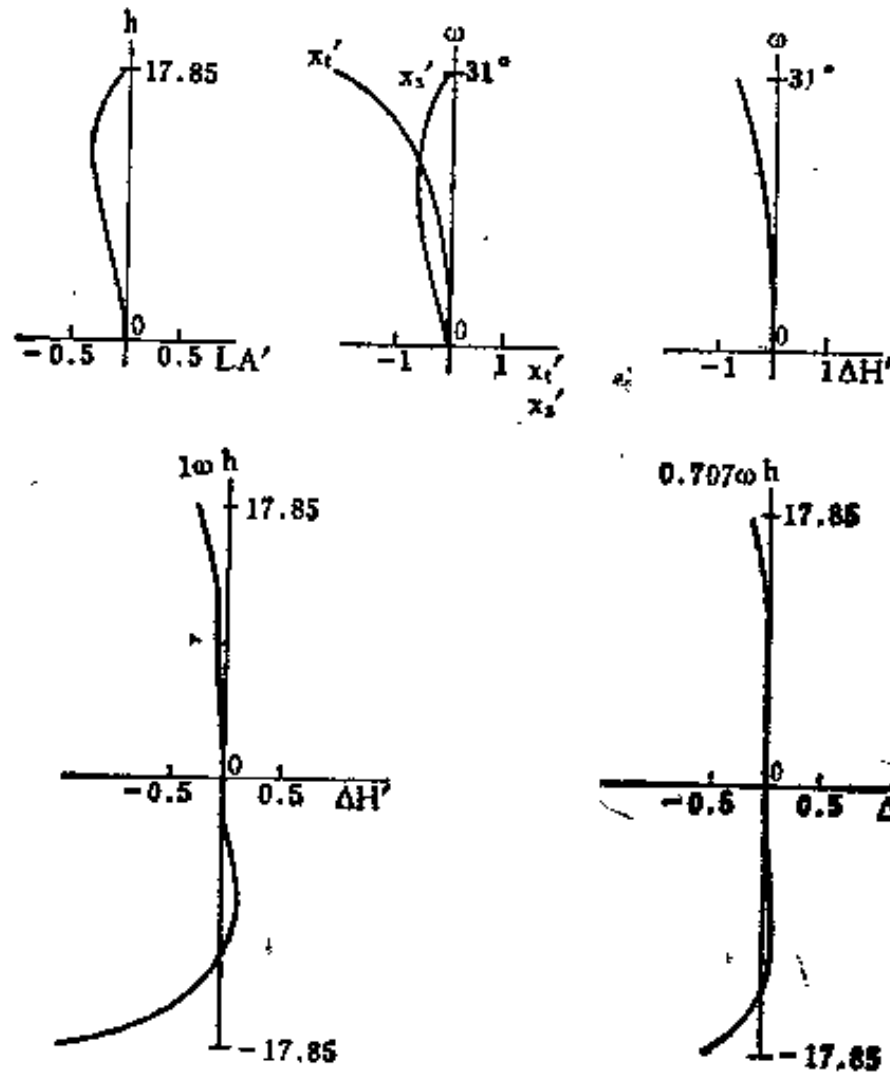
F.A.=±31°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	161.10	4.2	1.51680	64.2	6	143.60	3.9		
2	41.90	27.8			7	-76.70	7.2	1.77279	49.5
3	68.10	36.1	1.71300	53.9	8	-46.40	0.3		
4	-133.30	17.5*			9	305.60	6.7	1.71300	53.9
5	-58.30	4.4	1.74077	27.5	10	-109.95			

17.5\* = 8.8 + 8.7

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1°)
	-0.0750	0.0538	0.0358	-0.1534	-0.3333	60.1	-1.2%
h 或 ω %	LA'	ΔH'	x <sub>t</sub>	x <sub>s</sub>	x <sub>t</sub> - x <sub>s</sub>	K <sub>T1</sub>	K <sub>T0.7</sub>
100	-0.047	-0.713	-2.359	-0.065	-2.294	-0.852	-0.100
70	-0.340	-0.339	-0.553	-0.663	0.110	-0.368	-0.009



编号: 03-02-014

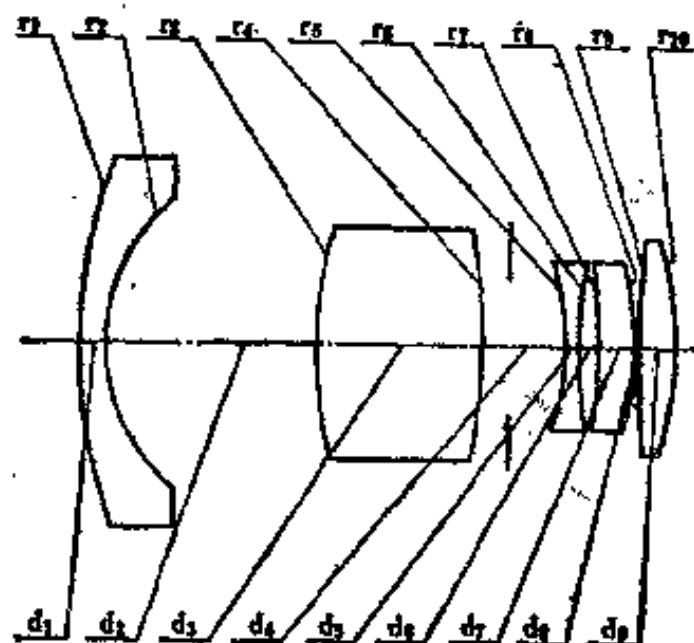
# 广角摄影镜头

E.F.L=100

B.F.L=104.66

FNo.=2.8

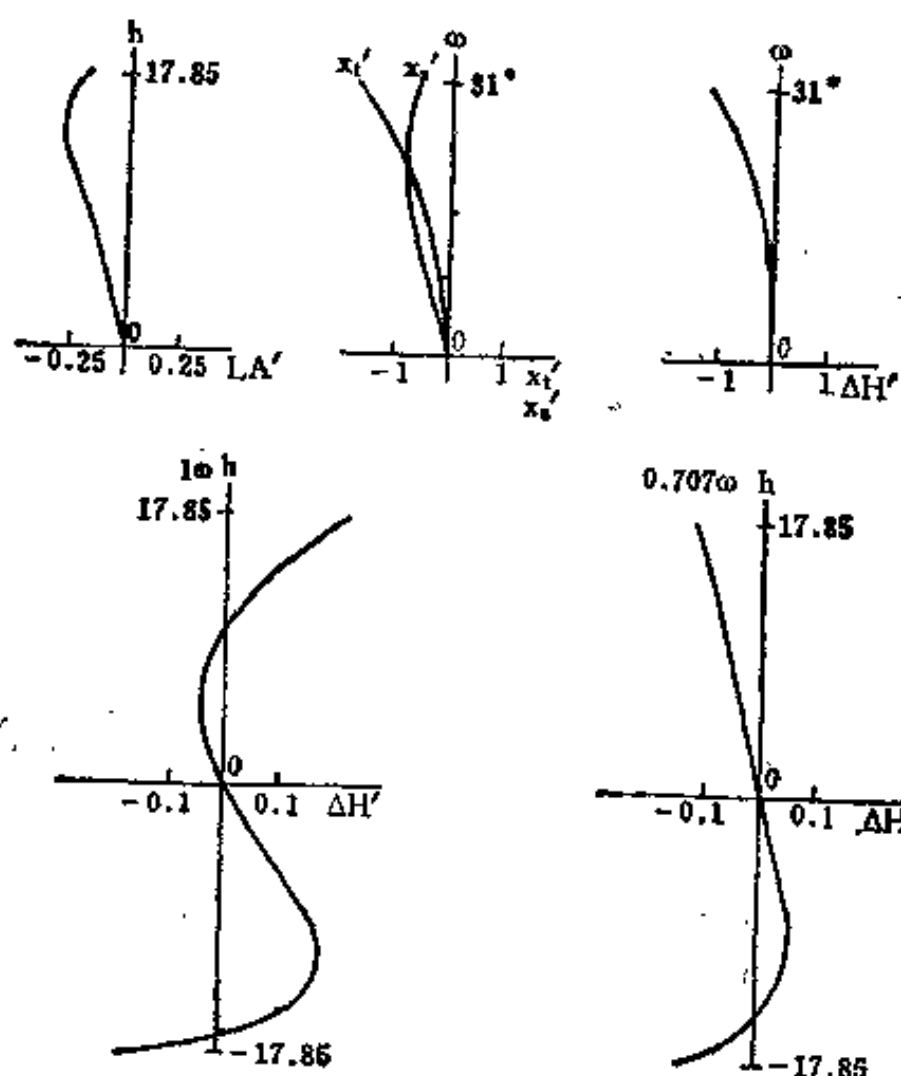
F.A.=±31°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	140.10	6.0	1.51454	54.6	6	119.00	4.0		
2	47.50	52.0			7	-146.50	10.5	1.71300	53.9
3	82.50	42.3	1.74443	49.4	8	-67.00	0.1		
4	-135.00	21.0*			9	279.67	9.4	1.62041	60.3
5	-59.50	3.5	1.72825	28.3	10	-91.15			

21.0\* = 10.0 + 11.0

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1ω)
	-0.0551	-0.0069	0.0175	-0.1628	-0.4129	60.1	-1.9%
h 或 ω %	LA'	ΔH'	x <sub>t</sub>	x <sub>s</sub>	x <sub>t</sub> - x <sub>s</sub>	K <sub>T1</sub>	K <sub>T0.7</sub>
100	-0.210	-1.161	-1.816	-0.595	-1.221	0.022	0.120
70	-0.286	-0.456	-0.861	-0.907	0.046	-0.125	-0.013



编号: 03-02-015

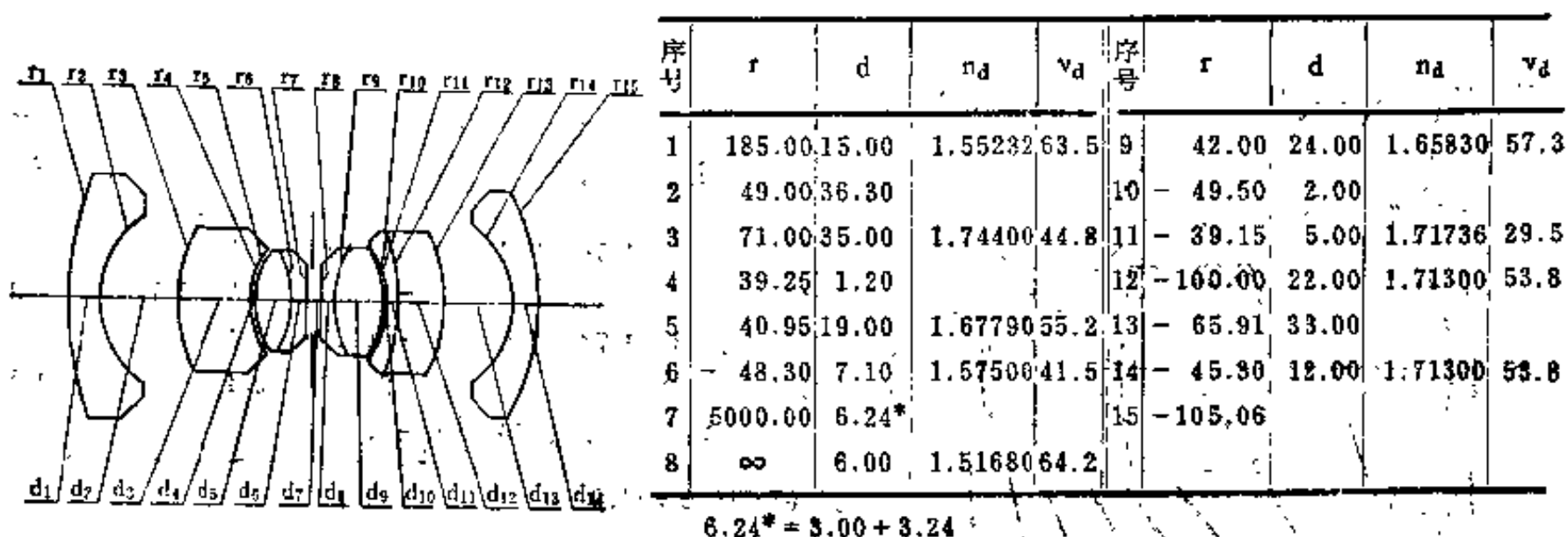
# 广 角 物 镜

E.F.L=100

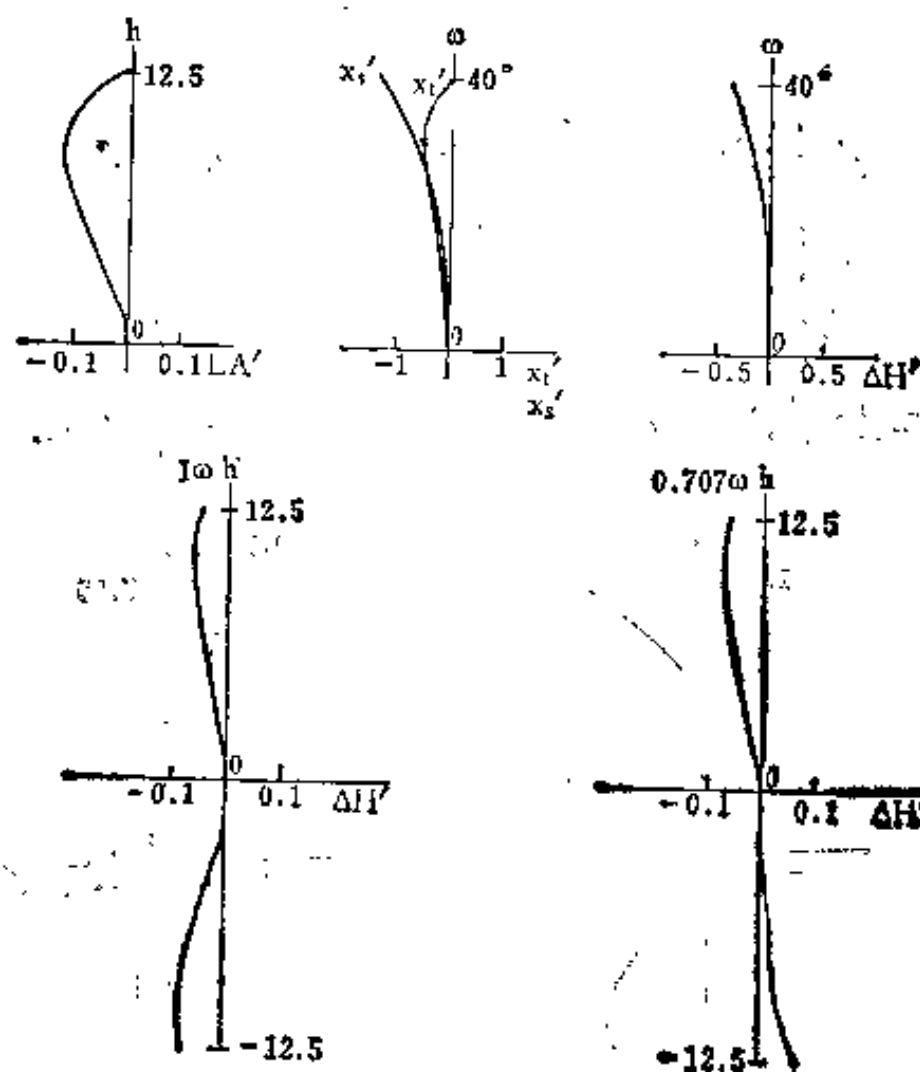
B.F.L=31.65

FN<sub>0</sub> = 4

F.A. = ±40°\*\*



	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	III	QP(1ω)
	-0.0140	-0.0093	-0.0142	-0.0125	-0.0694	83.9	-0.5%
h 或 ω %	LA'	ΔH'	x <sub>t</sub> '	x <sub>s</sub> '	x <sub>t</sub> ' - x <sub>s</sub> '	K <sub>11</sub> '	K <sub>T0.7</sub> '
100	-0.003	-0.410	0.017	-1.410	1.427	-0.054	-0.063
70	-0.126	-0.126	-0.472	-0.586	0.114	0.009	-0.022



编号: 03-02-016

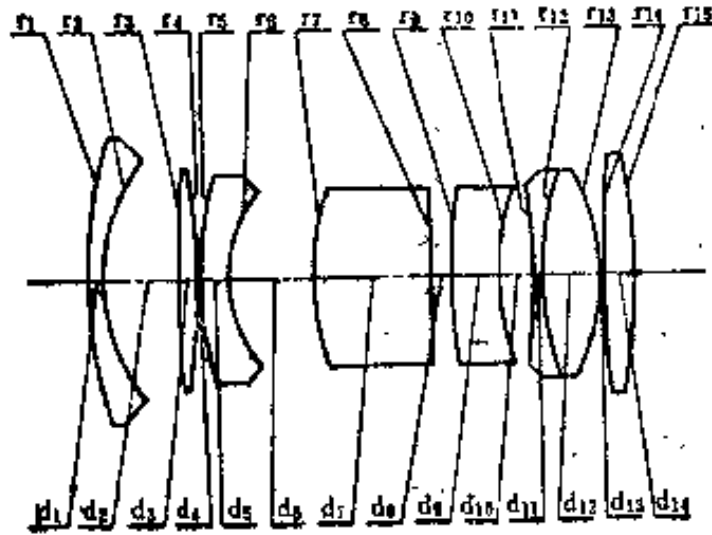
# 大孔径长后截距广角镜头

E.F.L=100

B.F.L=136.16

FNo.=2

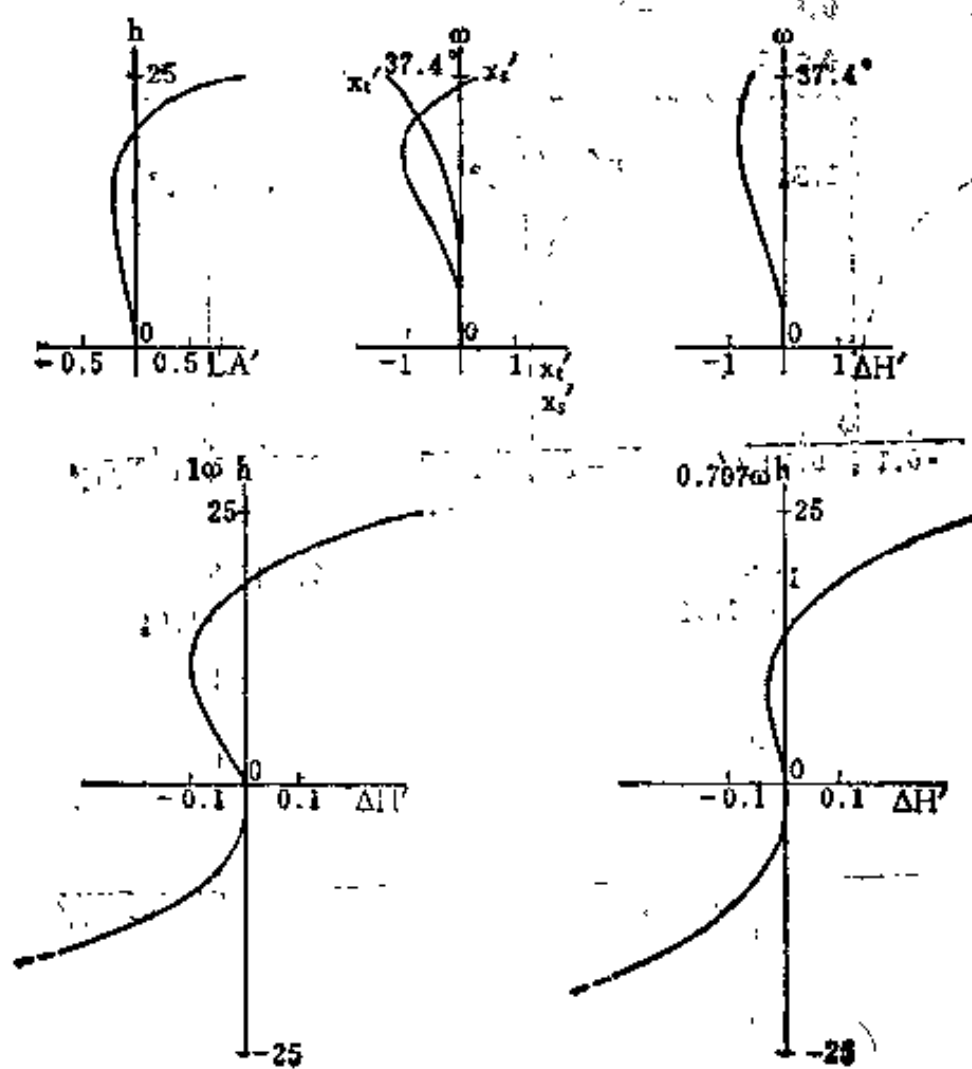
F.A.=±37.4°



序号	r	d	n	v	序号	r	d	n	v
1	228.1	6.9	1.65160	58.6	9	252.6	22.6	1.80518	25.4
2	91.5	34.7			10	113.9	15.7		
3	771.9	9.6	1.80740	35.4	11	357.9	4.2	1.80518	25.4
4	-334.4	0.4			12	145.6	26.2	1.74100	52.7
5	211.7	14.0	1.54771	62.9	13	101.2	0.4		
6	60.9	37.6			14	543.8	14.5	1.61534	44.5
7	123.5	54.8*	1.78800	47.5	15	-288.3			
8	-3915.5	8.8							

54.8\* = 40.0 + 14.8

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.142	-0.082	0.112	-0.441	-1.093	76.1	-0.76%
h 或 ω%	LA'	ΔH'	$x_t^h$	$x_s^h$	$x_t^h - x_s^h$	$K_{T1}^h$	$K_{T0.7}^h$
100	0.976	-0.576	-1.440	0.330	-1.770	-0.627	-0.302
70	-0.152	-0.761	-0.358	-1.091	0.733	-0.235	-0.123



编号: 03-02-017

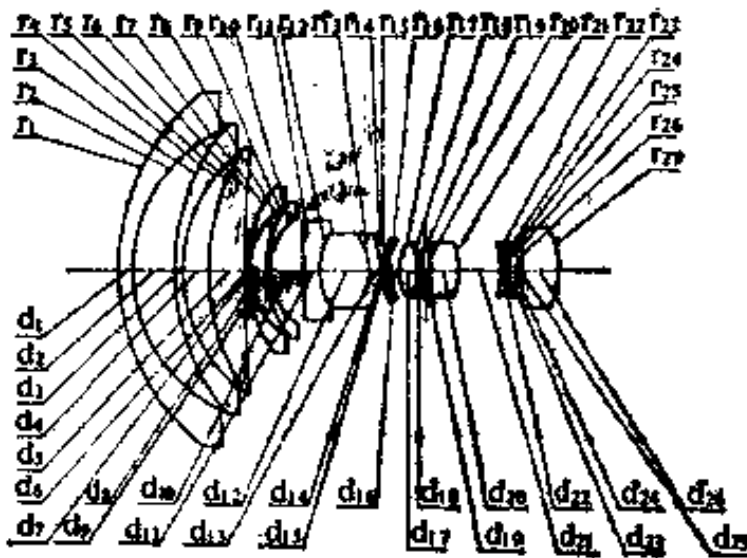
# 反远距型广角物镜

E.F.L=15.4

B.F.L=38.06

FNo.=5

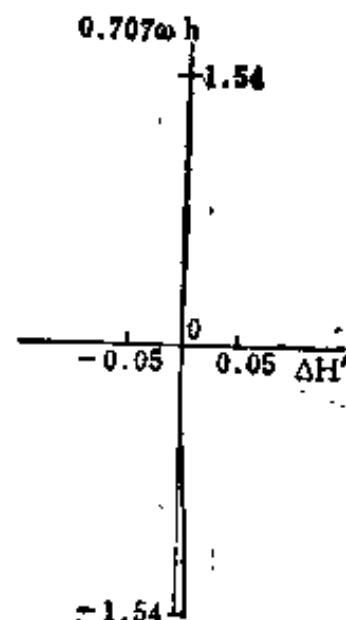
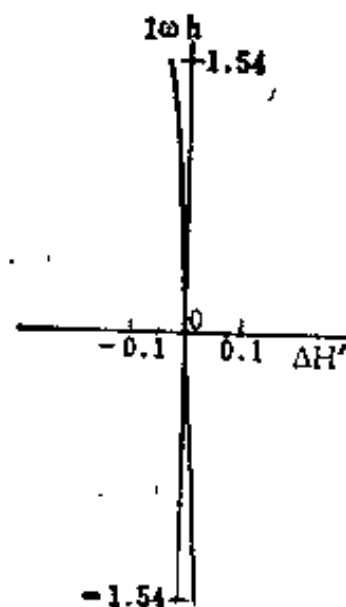
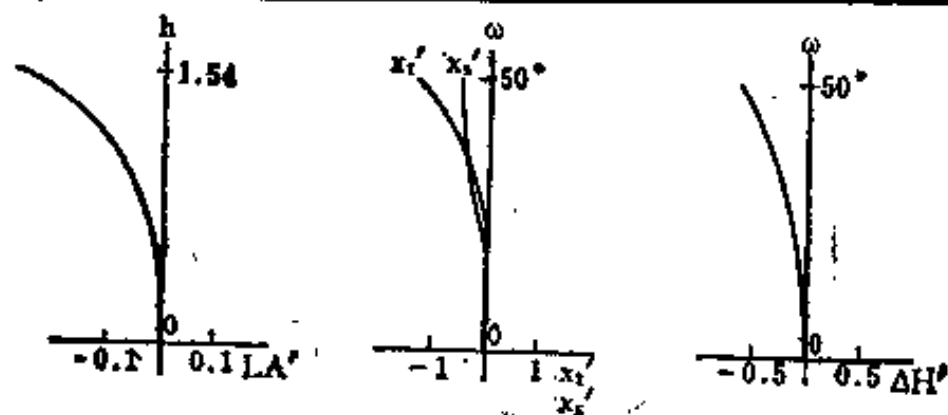
F.A.=±50°\*\*



序号	r	d	nd	vd	序号	r	d	nd	vd
1	46.00	3.10	1.73200	53.2	15	20.00	1.00	1.69680	55.6
2	30.90	7.40			16	8.50	2.30		
3	43.60	2.00	1.73200	53.2	17	12.80	3.80	1.58065	37.1
4	30.60	4.80			18	14.00	1.00	1.58313	59.3
5	45.80	7.60	1.70000	47.9	19	∞	1.70*		
6	310.50	0.10			20	∞	5.62	1.58065	37.1
7	24.20	1.00	1.84110	43.3	21	12.10	2.30		
8	14.90	3.00			22	13.80	0.65	1.86074	23.1
9	20.90	1.00	1.84110	43.3	23	34.30	0.65		
10	13.90	6.60			24	77.00	2.00	1.44268	67.2
11	-255.00	2.80	1.84110	43.3	25	10.80	0.10		
12	12.20	10.00	1.54072	47.2	26	466.00	7.60	1.52000	70.1
13	10.80	2.00	1.53996	59.7	27	19.68			
14	18.90	0.20							

1.70\* = 0.85 + 0.85

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1%)
	-0.0027	0.0038	-0.0008	-0.0155	-0.1157	18.5	-3.5%
h 或 ω %	LA'	ΔH'	$x'_1$	$x'_2$	$x'_3 - x'_4$	$K'_{T1}$	$K'_{T1.7}$
100	-0.286	-0.650	-1.264	-0.487	-0.777	-0.0025	-0.0009
70	-0.083	-0.329	-0.267	-0.377	0.110	0.0012	0.0012



编号: 03-02-018

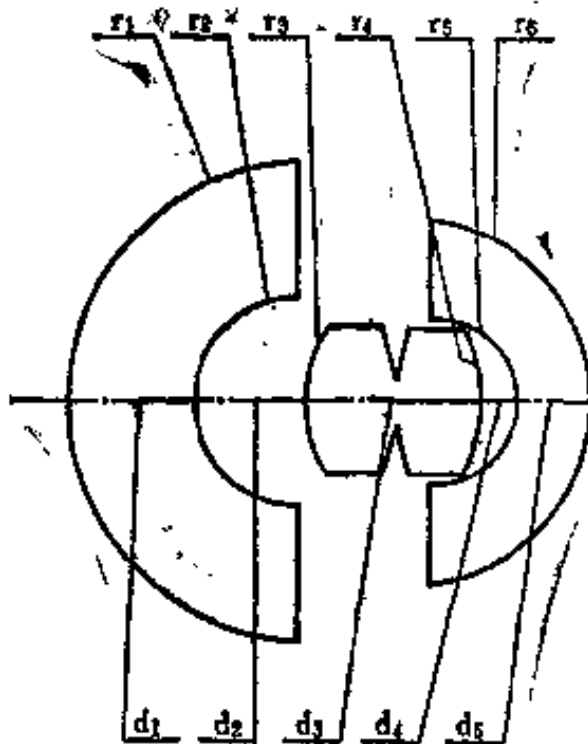
# 三片式广角物镜

E.F.L = 1

B.F.L = 0.80299

FNo. = 8

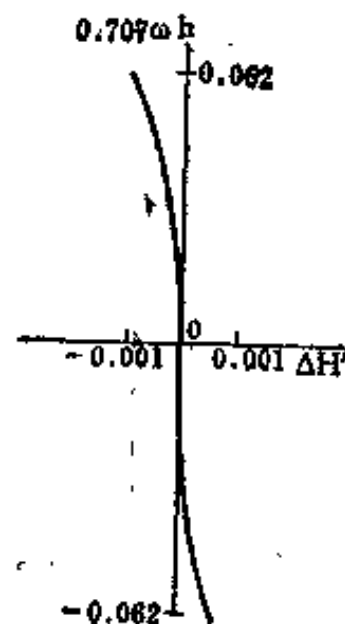
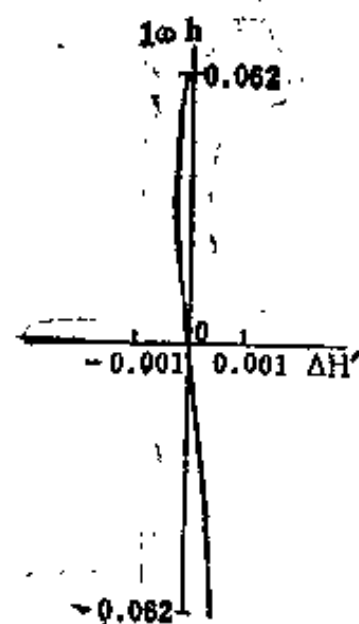
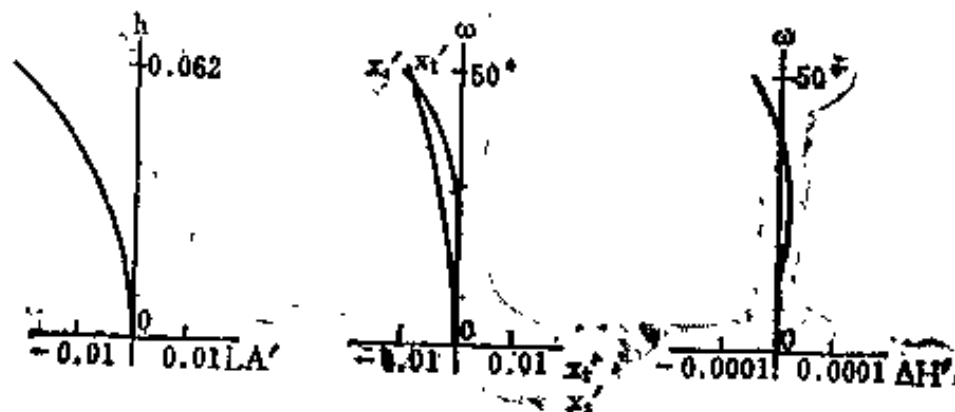
F.A. =  $\pm 50^\circ$  \*\*



序号	r	d	$n_d$	$v_d$	序号	r	d	$n_d$	$v_d$
1	0.7760	0.5319	1.80518	25.46	4	-0.3672	0.1603		
2	0.2562	0.1802			5	-0.2419	0.3491	1.80518	25.46
3	0.3779	0.5099*	1.71300	53.89	6	-0.5989			

$$0.50990^* = 0.25495 + 0.25495$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.000170	-0.000039	-0.000064	0.000069	0.000003	1.2	-0.004%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-0.024	-0.00005	-0.010	-0.011	0.001	0.00026	0.00013
70	-0.012	0.00001	-0.005	-0.001	-0.004	-0.00022	-0.00012



编号: 03-02-019

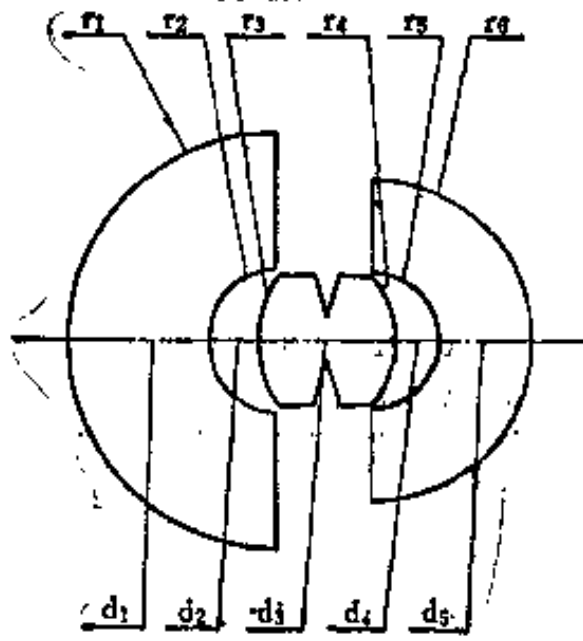
# 三片式超广角物镜

E.F.L = 1

B.F.L = 0.5265

FNo. = 8

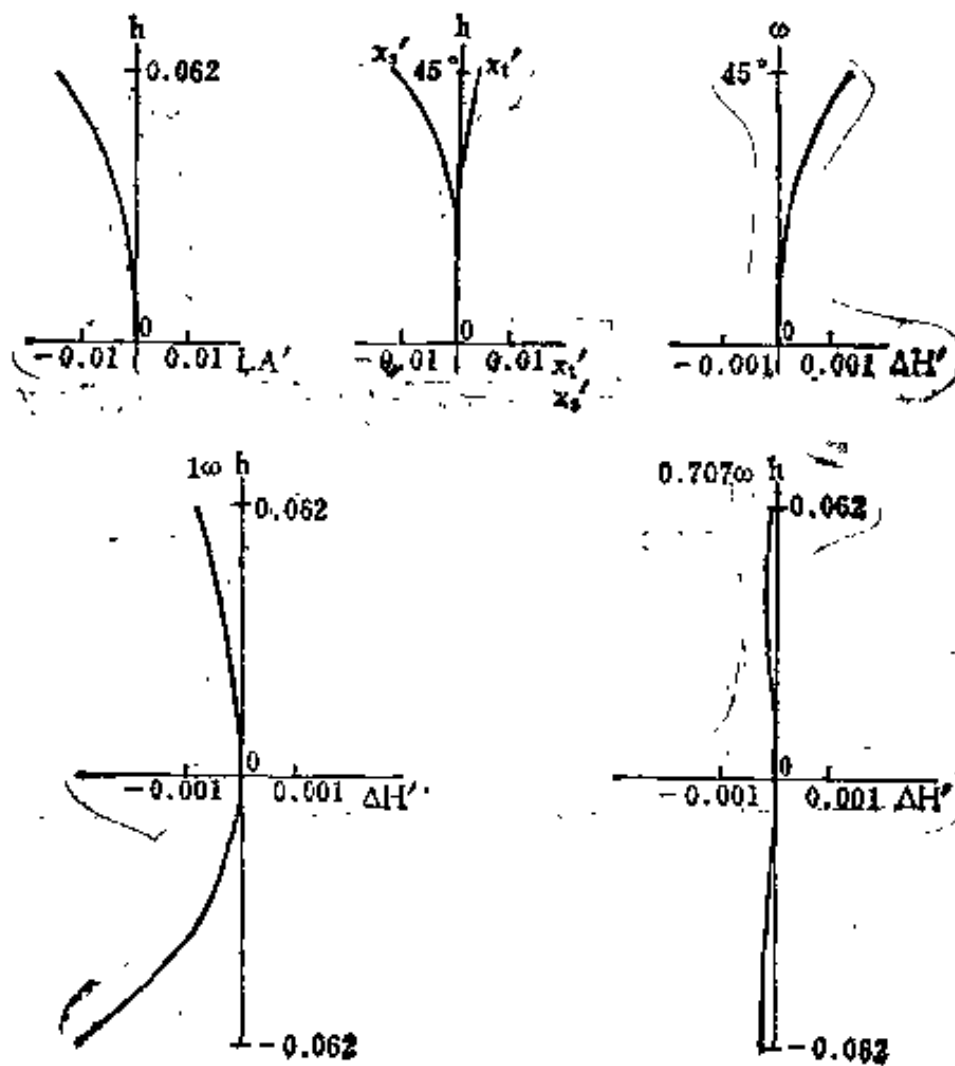
F.A. =  $\pm 45^\circ$



序号	r	d	$n_d$	$v_d$	序号	r	d	$n_d$	$v_d$
1	0.6324	0.3286	1.78470	26.08	4	-0.4244	0.0919		
2	0.2750	0.2892			5	-0.2073	0.1965	1.78470	26.08
3	0.3327	0.4714*	1.64250	57.96	6	-0.4805			

$$0.4714^* = 0.2357 + 0.2357$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.000094	0.000029	-0.000012	0.000023	0.000132	1	0.13%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K_{f1}$	$K'_{f0.7}$
100	-0.0143	0.0013	0.0026	-0.0127	0.0153	-0.0018	-0.0009
70	-0.0066	0.0005	0.0009	-0.0020	0.0029	-0.0001	-0.0001



编号: 03-02-020

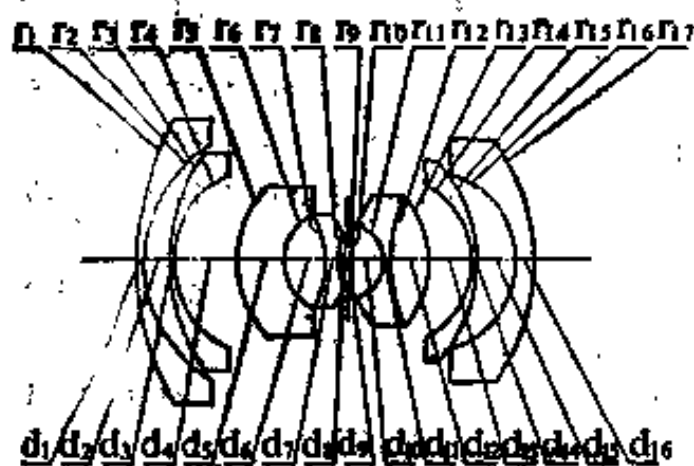
# 广 角 物 镜

E.F.L=100

B.F.L=28.98

FNo.=4

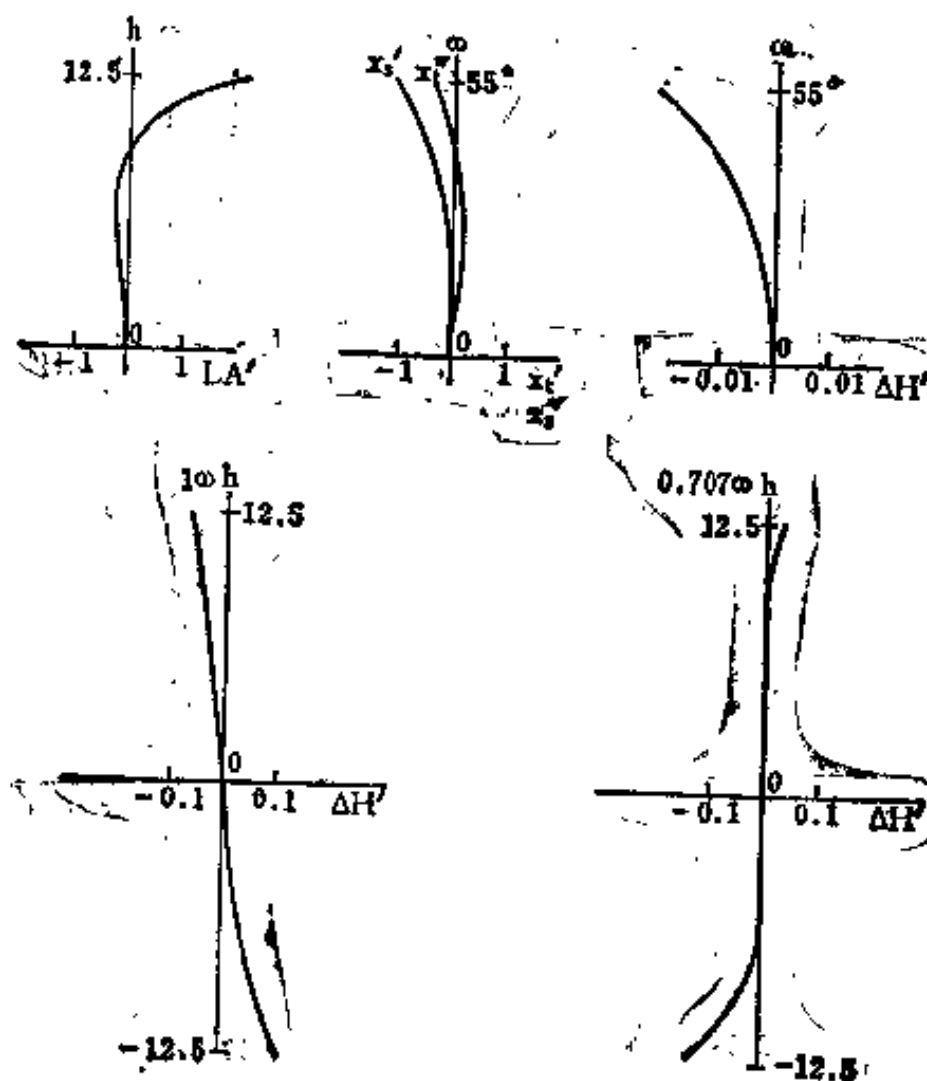
F.A.=±55°\*



序号	r	d	n <sub>d</sub>	v <sub>d</sub>	序号	r	d	n <sub>d</sub>	v <sub>d</sub>
1	163.25	4.59	1.51680	64.2	10	-1385.90	18.63	1.55232	63.5
2	74.41	14.14			11	-22.00	3.78	1.63636	35.3
3	99.80	3.96	1.52054	69.7	12	81.47	22.40	1.74300	33.3
4	53.18	36.17			13	-58.62	22.91		
5	62.21	26.82	1.74400	44.8	14	-48.76	3.96	1.53172	48.8
6	29.33	22.80	1.65100	41.9	15	-83.50	22.29		
7	-55.22	6.80	1.59308	35.7	16	-51.42	10.38	1.64050	60.1
8	31.80	4.30	1.64350	47.8	17	-111.90			
9	926.20	3.90*							

3.90\* = 1.90 + 2.00

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0417	-0.0129	-0.0042	0.0269	-0.0126	142.8	-0.015%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	2.086	-0.022	-0.379	-1.110	0.731	0.024	0.0027
70	-0.086	-0.009	0.059	-0.321	0.380	-0.063	-0.0104





编号: 03-02-021

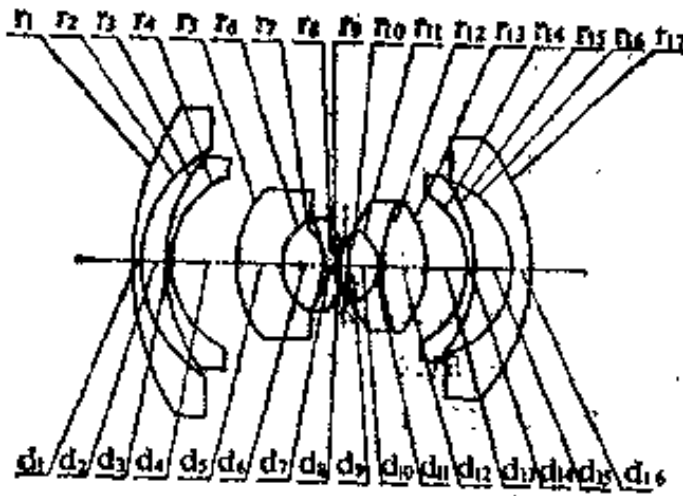
# 广 角 物 镜

E.F.L = 100

B.F.L = 30.8

FNo. = 4

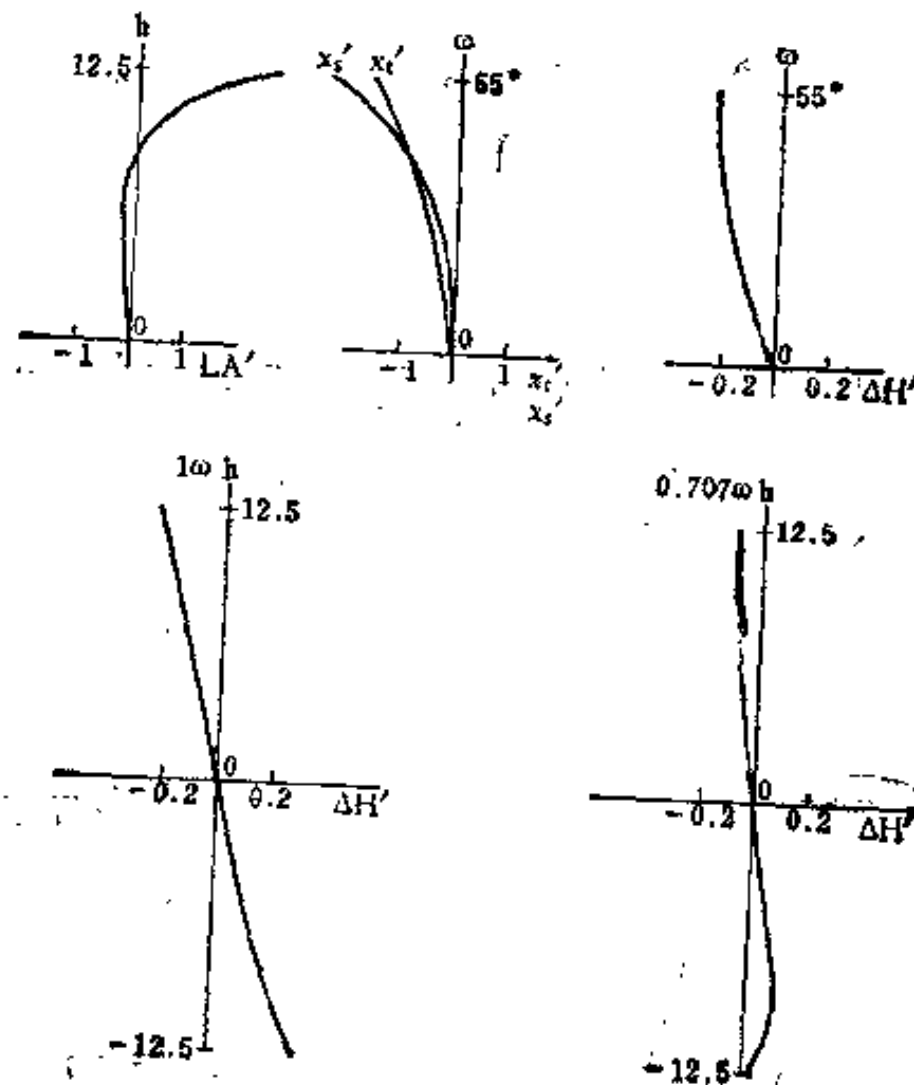
F.A. =  $\pm 55^\circ$



序号	r	d	n <sub>d</sub>	v <sub>d</sub>	序号	r	d	n <sub>d</sub>	v <sub>d</sub>
1	183.25	4.53	1.51680	64.2	10	-1385.90	18.00	1.55232	63.5
2	74.41	14.14			11	-21.78	1.00	1.63636	35.3
3	99.80	3.96	1.52054	69.7	12	90.00	25.80	1.74300	33.3
4	53.18	36.17			13	-57.35	22.91		
5	62.21	26.82	1.74400	44.8	14	-48.76	3.96	1.58375	55.3
6	29.33	22.80	1.85100	41.9	15	-83.25	21.00		
7	-55.22	6.80	1.59308	35.7	16	-51.42	10.30	1.64050	60.1
8	32.50	3.00	1.64350	47.8	17	-111.90			
9	973.66	2.90*							

3.90\* = 1.90 + 2.00

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.0390	-0.0115	-0.0168	0.0176	-0.1058	142.8	-0.17%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	2.602	-0.249	-1.613	-2.562	0.949	0.041	0.0140
70	0.018	-0.210	-1.059	-0.865	-0.194	-0.038	0.0006



编号: 03-02-023

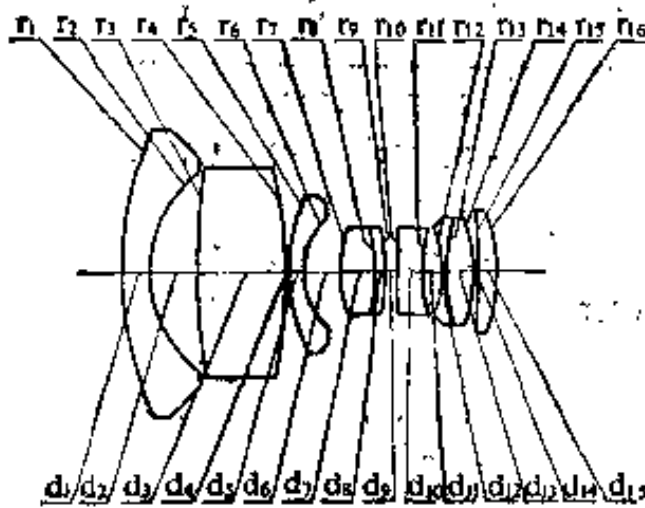
# 反远距型广角照相机镜头

E.F.L.=1.027

B.F.L.=1.548

FNo.=2.8

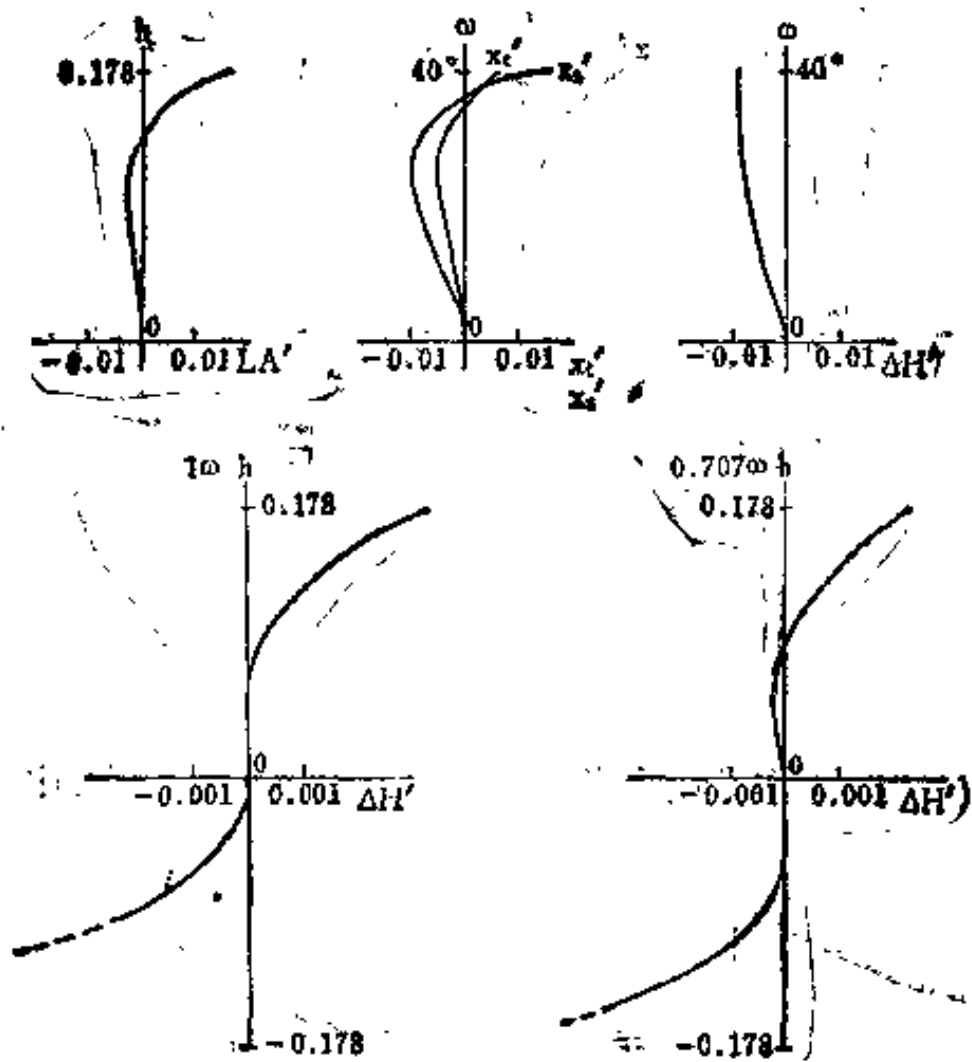
F.A.=±40°



序号	r	d	n <sub>d</sub>	v <sub>d</sub>	序号	r	d	n <sub>d</sub>	v <sub>d</sub>
1	2.0873	0.180	1.62041	60.3	9	-1.4709	0.088*		
2	0.7842	0.300			10	-40.0000	0.160	1.51823	59.0
3	4.6000	0.552	1.62280	56.9	11	0.9280	0.112		
4	-2.9420	0.004			12	-0.9200	0.028	1.78470	25.1
5	1.1160	0.092	1.58913	61.2	13	1.1768	0.130	1.66790	55.5
6	0.4520	0.232			14	-0.7440	0.004		
7	0.8400	0.200	1.57501	41.3	15	-8.8000	0.104	1.76684	46.2
8	-0.8400	0.054	1.56248	50.9	16	-0.9616			

0.088\* = 0.044 + 0.044

	ΣS <sub>1</sub>	ΣS <sub>2</sub>	ΣS <sub>3</sub>	ΣS <sub>4</sub>	ΣS <sub>5</sub>	HI	QP(100)
	-0.00120	0.00012	0.00038	-0.000208	-0.00313	0.86	-1.04%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>F1</sub>	K <sub>F0.7</sub>
100	0.0182	-0.0089	0.0060	0.0118	-0.0058	-0.00560	-0.00220
70	-0.0022	-0.0087	-0.0049	-0.0107	0.0058	-0.00210	-0.00048



编号: 03-02-024

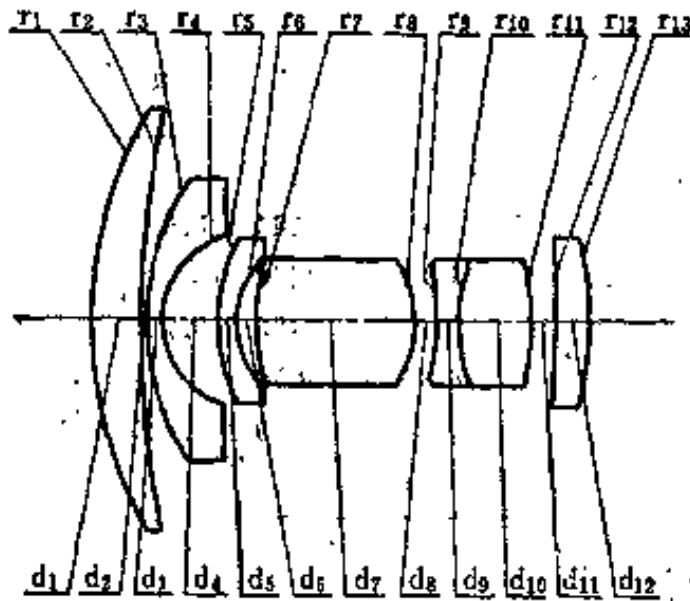
# 反远距型广角镜头

E.F.L=1.013

B.F.L=1.645

FNo. = 3.5

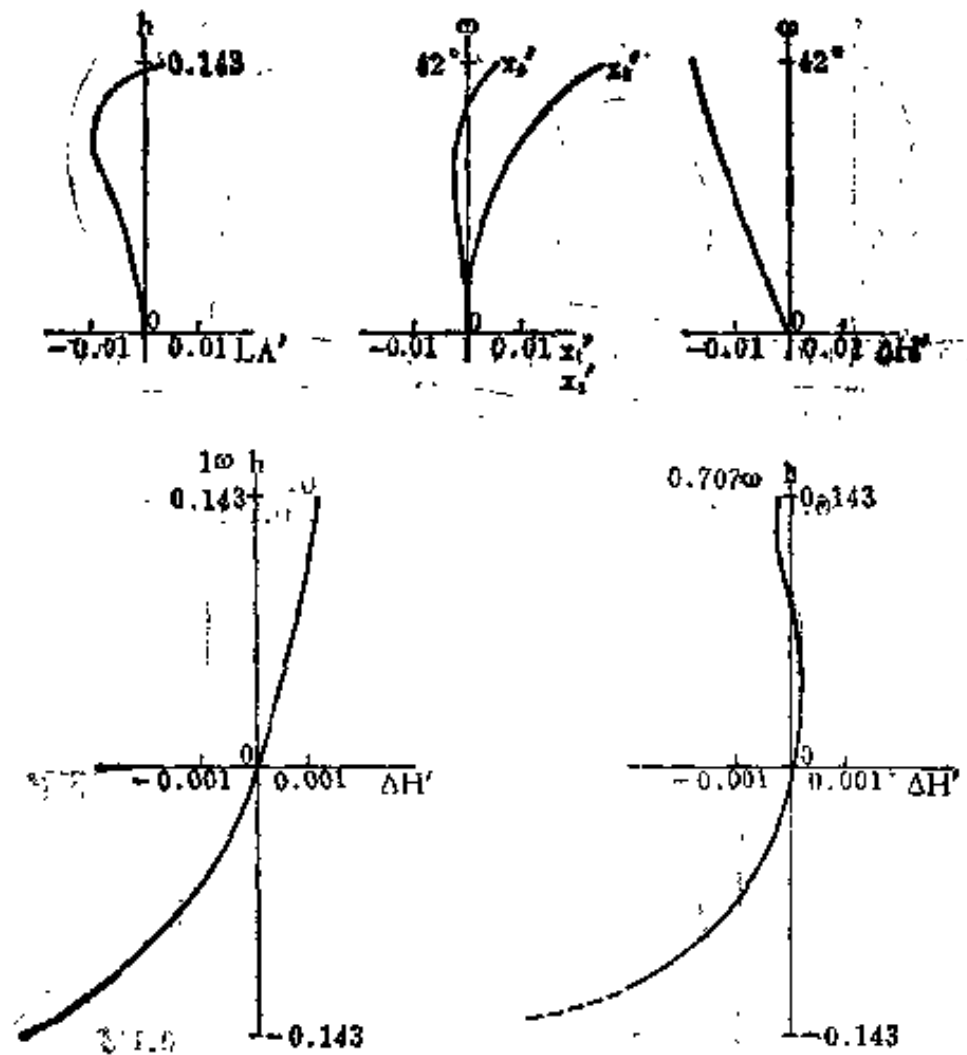
F.A. =  $\pm 42^\circ$ \*\*



序号	r	d	n	v	序号	r	d	n	v
1	1.4862	0.1861	1.7200	42.1	8	-0.4401	0.0745*		
2	3.6691	0.0047			9	-1.3246	0.0931	1.8467	23.9
3	0.9039	0.0698	1.6180	63.4	10	0.6474	0.2688	1.6166	36.6
4	0.3214	0.2100			11	-0.8825	0.0930		
5	0.7290	0.0698	1.7130	54.0	12	-5.9585	0.1220	1.6177	49.8
6	0.3283	0.0629			13	-1.6938			
7	0.9385	0.5915	1.5955	39.2					

$$0.0745^* = 0.0300 + 0.0445$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
$\delta_1$	-0.00093	0.00034	0.00050	-0.00073	-0.00074	0.91	-2%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{11}$	$K'_{10.7}$
100	-0.0020	-0.0185	0.0259	0.0047	0.0212	-0.00150	-0.00066
70	-0.0025	-0.0129	0.0106	-0.0023	0.0129	-0.00390	-0.00096



编号: 03-02-025

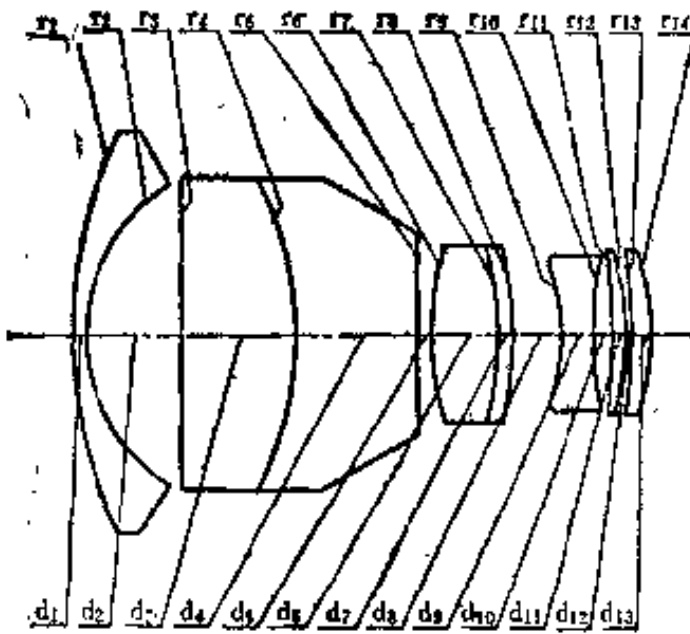
# 反远距型广角镜头

E.F.L=1

B.F.L=1.28

FNo.=3.5

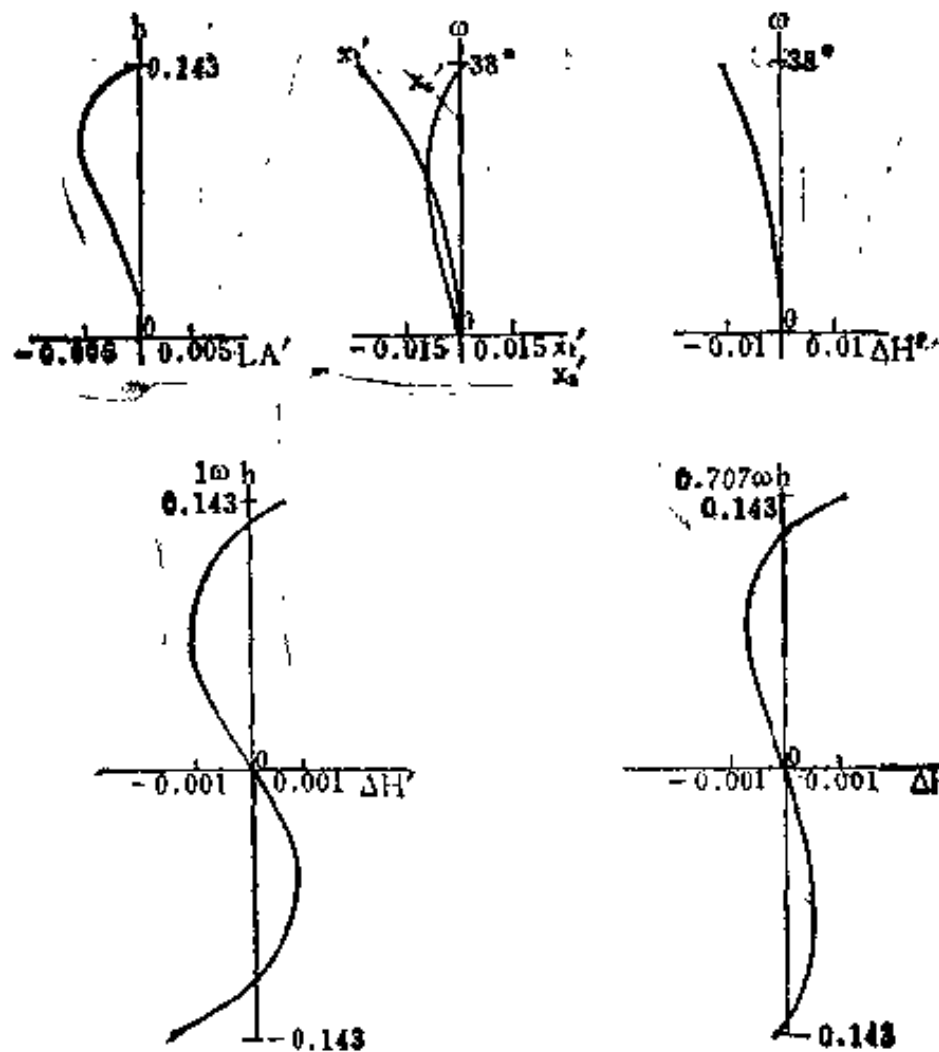
F.A.=±38°



序号	r	d	n	v	序号	r	d	n	v
1	1.3689	0.0456	1.6775	55.4	8	-1.4304	0.1496*		
2	0.5306	0.2834			9	-0.6033	0.1064	1.6727	32.2
3	∞	0.3471	1.7106	43.3	10	1.1719	0.0460		
4	-1.1292	0.3690	1.5111	60.5	11	-2.2307	0.0480	1.7200	50.3
5	∞	0.0400			12	-0.7088	0.0030		
6	0.9360	0.1965	1.7080	53.3	13	-2.0247	0.0600	1.6214	61.2
7	-0.8252	0.0300	1.6263	35.8	14	-0.6803			

$$0.1496^* = 0.0700 + 0.0796$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.000715	0.000197	-0.000925	-0.000908	-0.005040	0.78	-1.5%
h 或 ω %	LA'	ΔH'	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-0.00031	-0.0143	-0.0297	0.0019	-0.0315	-0.00044	-0.00038
70	-0.00533	-0.0067	-0.0132	-0.0089	-0.0043	0.00049	-0.00001



编号: 03-02-027

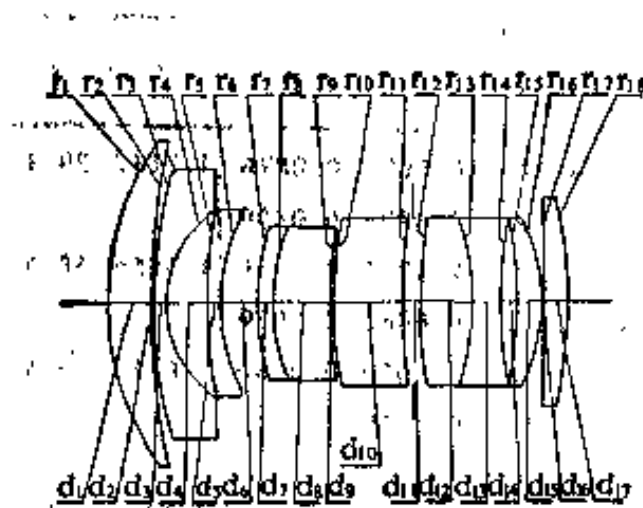
# 反远距型超广角镜头

$E.F.L = 1$

$B.F.L = 1.448$

$F.N. = 2.8$

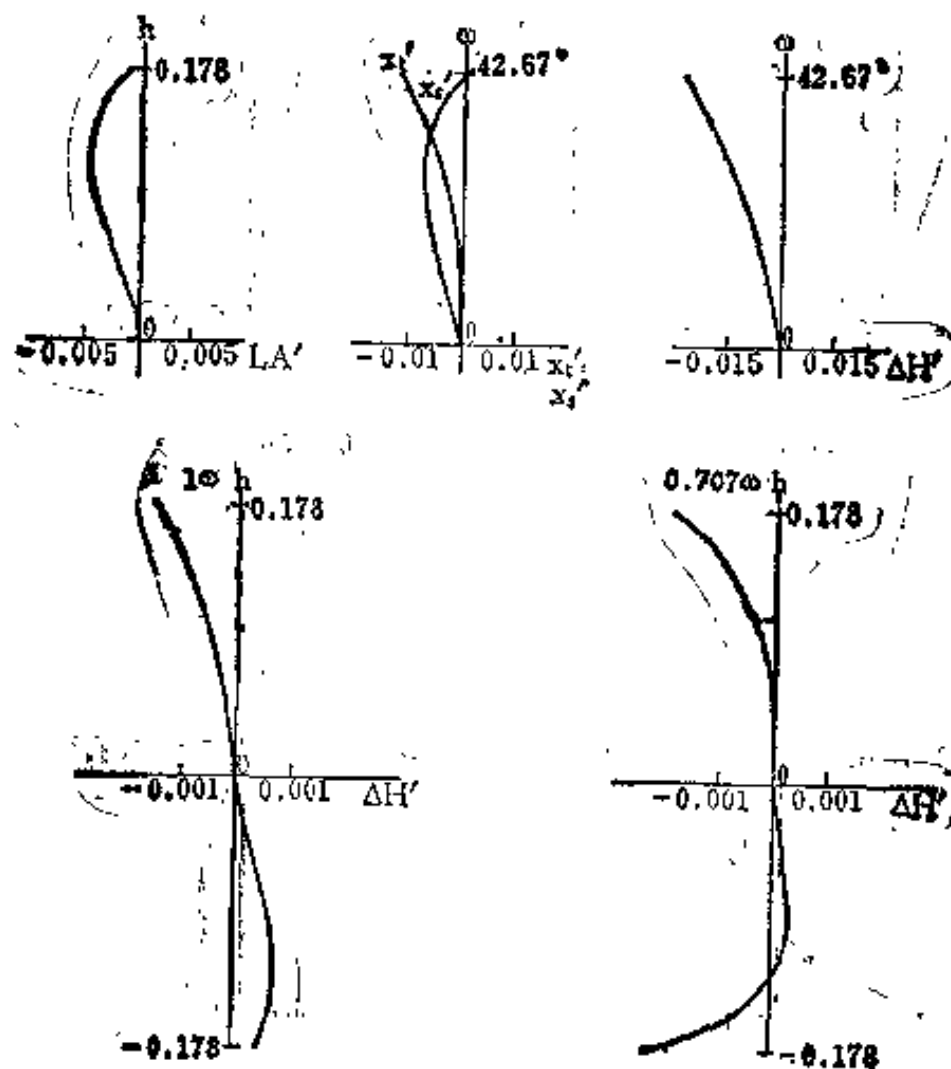
$F.A. = \pm 42.67^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	0.8352	0.1290	1.7200	50.4	10	1.7459	0.2058	1.6237	46.9
2	2.5729	0.0038			11	3.6218	0.0516		
3	1.5009	0.0387	1.6180	63.4	12	1.5649	0.1569	1.7620	40.2
4	0.3300	0.1306			13	-0.8088	0.0889	1.8052	25.4
5	1.5990	0.0387	1.6485	53.0	14	1.4895	0.0472		
6	0.5789	0.1095			15	-1.3814	0.0735	1.6968	55.6
7	0.7756	0.0395	1.6676	41.9	16	-0.5552	0.0038		
8	0.5351	0.1753	1.6261	39.1	17	28.8360	0.0752	1.7340	51.5
9	1.9263	0.0082			18	-1.5345			

$$0.0516^* = 0.0300 + 0.0216$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QT(1 $\omega$ )
	-0.00107	0.00052	0.00013	-0.00139	-0.01168	0.91	-3.1%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{F1}$	$K'_{F0.7}$
100	-0.00059	-0.028	-0.0120	0.0010	-0.0130	-0.00056	-0.00006
70	-0.00467	-0.015	-0.0043	-0.0075	0.0032	-0.00221	-0.00032



编号: 03-02-028

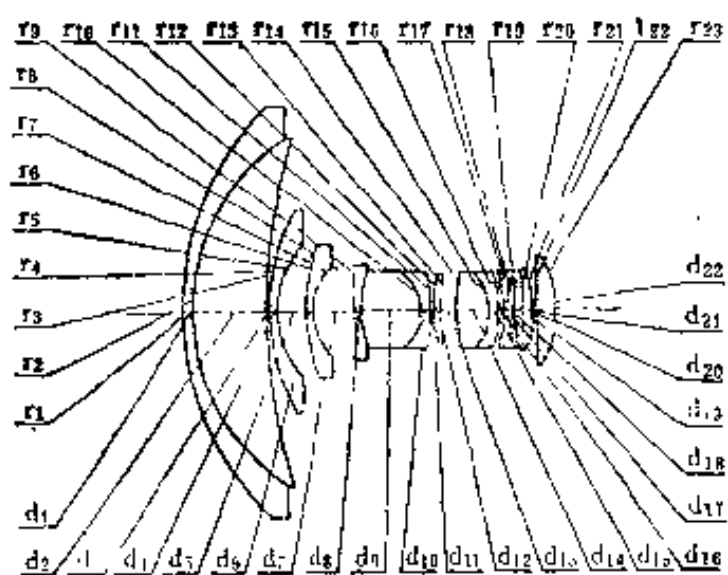
# 广 角 物 镜

E.F.L = 100

B.F.L = 231.1

FNo. = 4.5

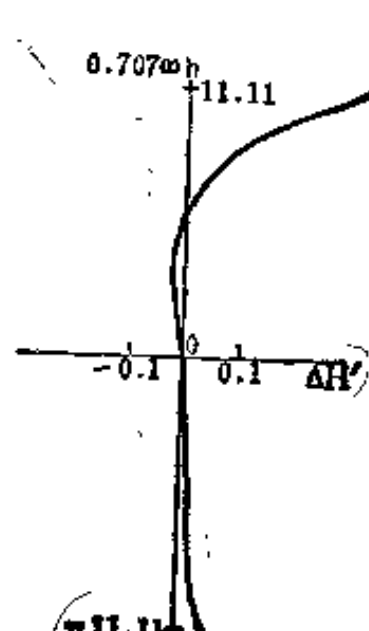
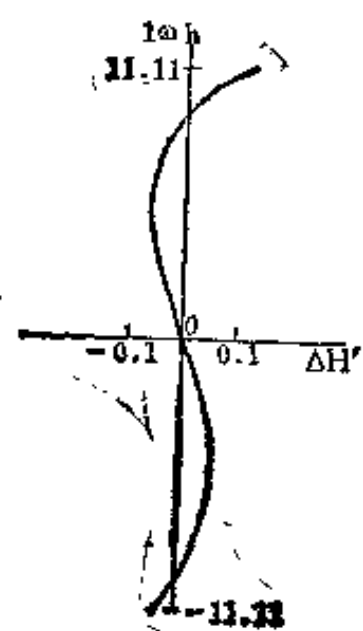
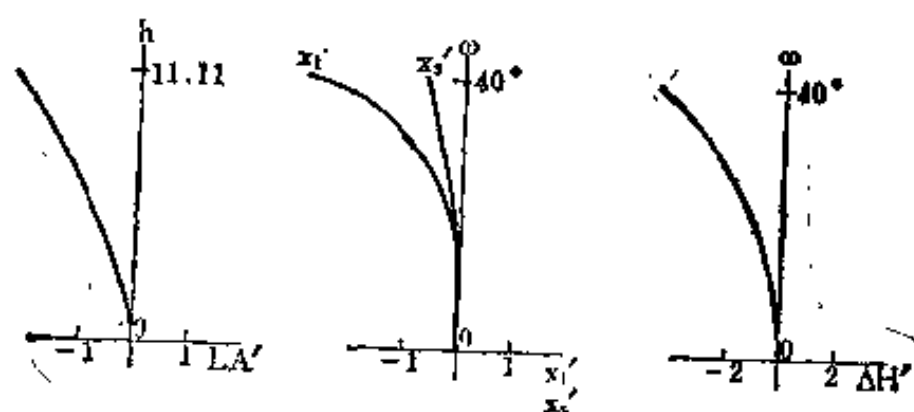
F.A. =  $\pm 40'^{**}$



序号	r	d	n	v	序号	r	d	n	v
1	243.90	7.32	1.78470	26.1	13	121.95	15.24*		
2	176.83	63.40	1.69680	55.6	14	121.95	28.66	1.62538	35.6
3	539.63	0.61			15	-39.63	6.10	1.62280	56.8
4	181.70	4.88	1.69680	55.6	16	-71.95	2.44		
5	76.22	24.39			17	-68.90	3.66	1.80518	25.5
6	128.05	6.10	1.69680	55.6	18	98.78	6.10	1.62041	60.3
7	48.78	34.15			19	280.18	3.66		
8	914.63	6.10	1.80454	39.5	20	-289.54	10.06	1.51728	69.6
9	59.15	46.95	1.58065	37.1	21	-76.83	0.61		
10	-40.85	12.20	1.58913	61.2	22	-1371.95	14.02	1.51728	69.6
11	-137.20	0.61			23	-86.22			
12	182.93	4.27	1.69680	55.6					

15.24\* = 9.00 + 6.24

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.0940	0.0480	-0.0229	-0.0090	-0.0226	83.9	-5.8%
h 或 $\omega\%$	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-2.4410	-4.8390	-2.9760	-0.6990	-2.2770	0.0305	-0.0126
70	-1.6050	-1.7550	-0.6210	-0.2550	-0.3660	0.1923	0.0297



编号: 03-02-029

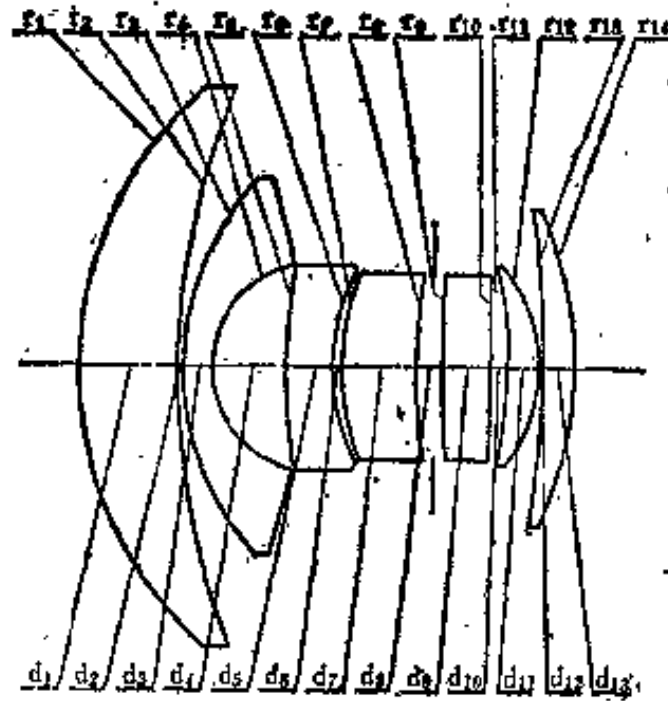
# 超广角摄影物镜

E.F.L=1

B.F.L=1.198

FNo.=3.5

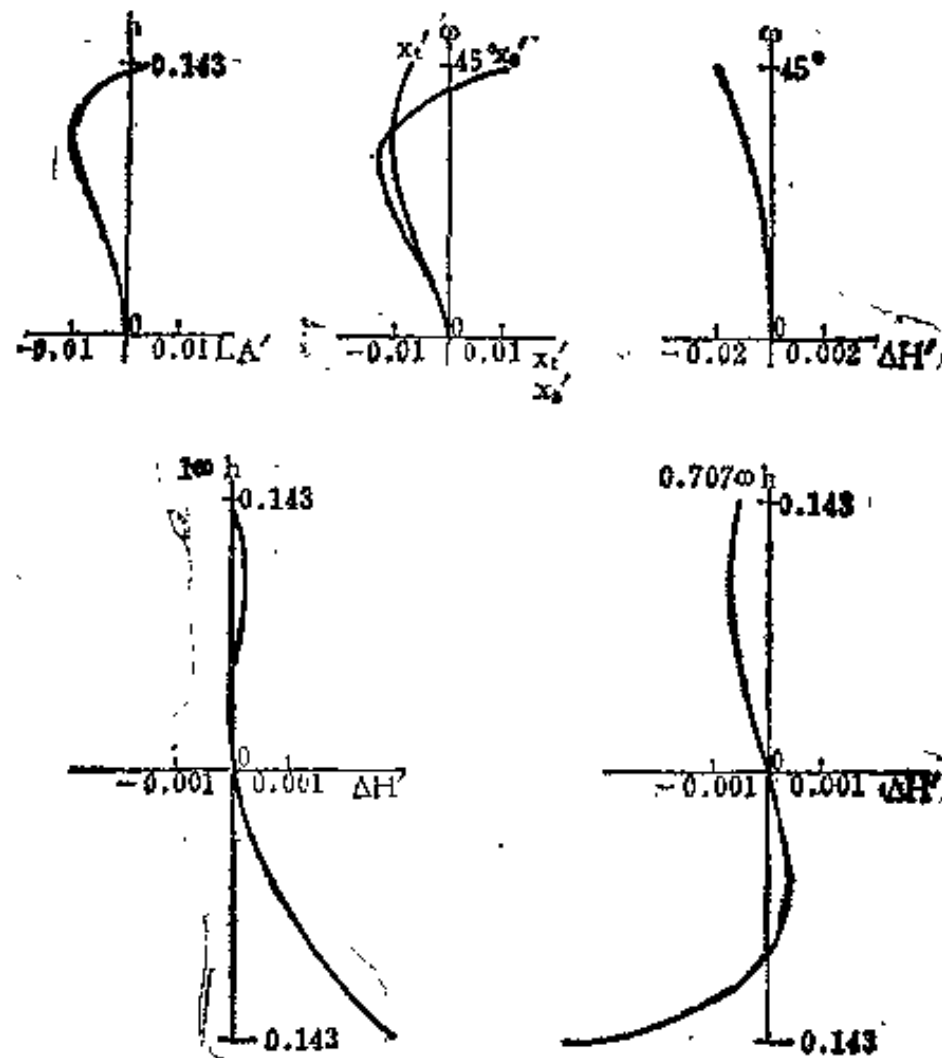
F.A.=±45°



序号	r	d	n	v	序号	r	d	n	v
1	0.7841	0.2078	1.7234	38.0	8	1.1836	0.0482*		
2	1.5939	0.0039			9	7.6842	0.1059	1.6204	60.3
3	0.5678	0.0643	1.4875	70.0	10	-7.6842	0.0357		
4	0.2137	0.1607			11	-0.8872	0.0627	1.4875	70.0
5	1.3937	0.0964	1.8052	25.5	12	-0.3130	0.0039		
6	0.4211	0.0161			13	-3.9127	0.0702	1.4875	70.0
7	0.5244	0.1607	1.8061	40.7	14	-0.7442			

$$0.0482^* = 0.0241 + 0.0241$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.00128	0.00118	-0.00056	-0.00188	-0.00457	1	-2%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{T1}$	$K'_{T0.7}$
100	0.00436	-0.0199	-0.0077	0.0115	-0.0192	0.00147	0.00099
70	-0.00992	-0.0080	-0.0108	-0.0134	0.0025	-0.00203	-0.00028



编号: 03-02-030

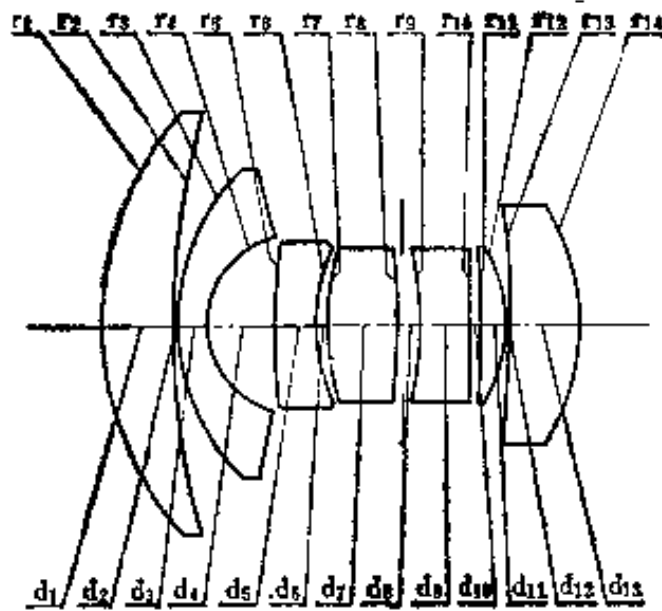
# 广角摄影物镜

E.F.L=1.027

B.F.L=1.343

FNo.=3.5

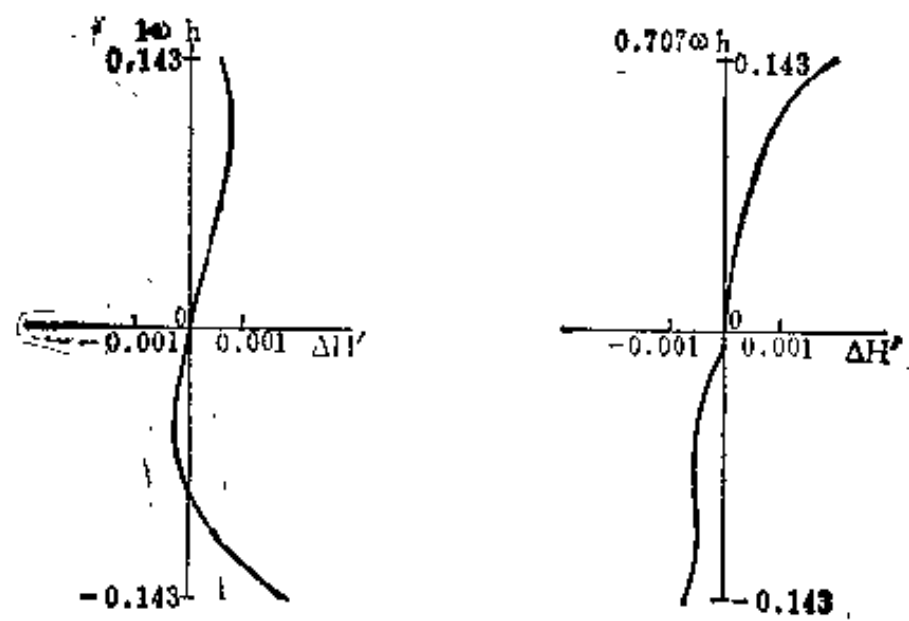
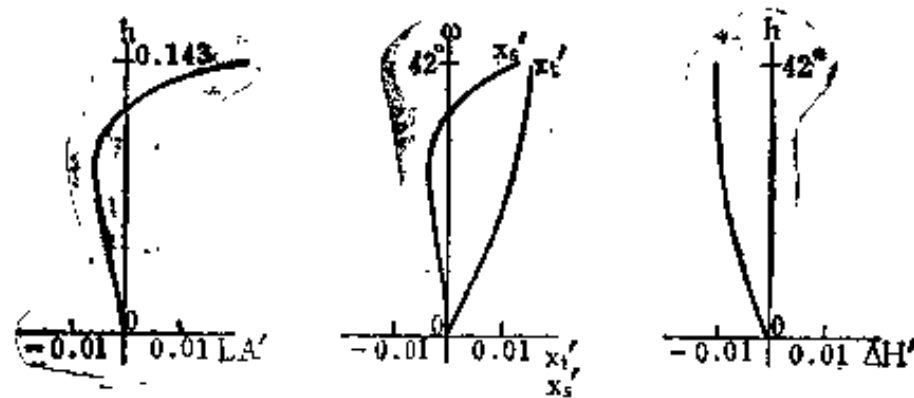
F.A.=±42°\*\*



序号	r	d	n	v	序号	r	d	n	v
1	0.8135	0.2015	1.6201	49.8	8	-2.2049	0.0549*		
2	2.1624	0.0039			9	-0.8916	0.1362	1.8052	25.5
3	0.5602	0.0731	1.4875	70.0	10	54.1565	0.0244		
4	0.2336	0.1830			11	-2.0378	0.0654	1.4875	70.0
5	4.8462	0.1099	1.8052	25.5	12	-0.3698	0.0039		
6	0.4544	0.0182			13	-3.2107	0.1830	1.5101	63.4
7	0.6476	0.1830	1.8052	25.5	14	-0.5841			

$$0.05490^* = 0.02745 + 0.02745$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1ω)
	-0.00108	0.00082	0.00047	-0.00153	-0.00194	0.93	-1.2%
h 或 ω %	LA'	ΔH'	$\lambda_t'$	$\lambda_s'$	$\lambda_t' - \lambda_s'$	$K_{T1}'$	$K_{T0.7}'$
100	0.0225	-0.0109	0.0148	0.0127	0.0021	0.00125	0.00057
70	-0.0051	-0.0093	0.0128	-0.0038	0.0166	0.00074	0.00025





编号, 03-02-031

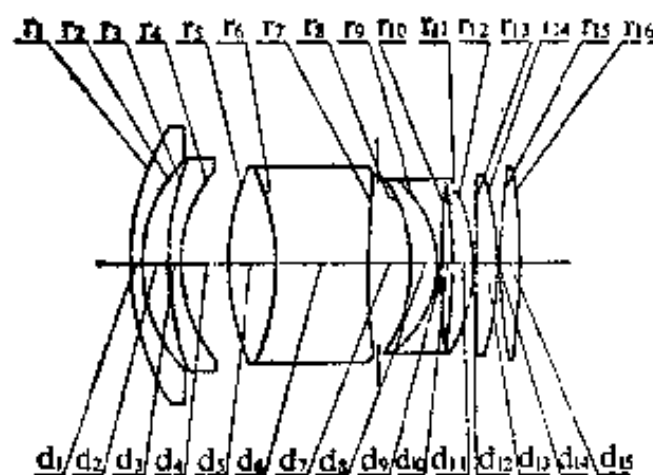
# 大孔径广角摄影物镜

E.F.L=100

B.F.L=106.44

FNo.=1.4

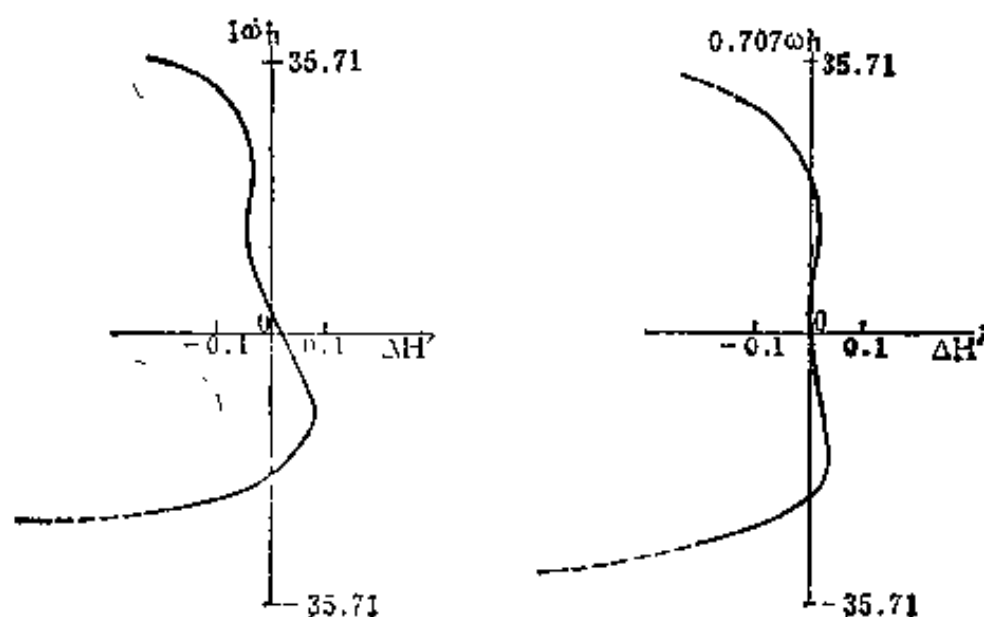
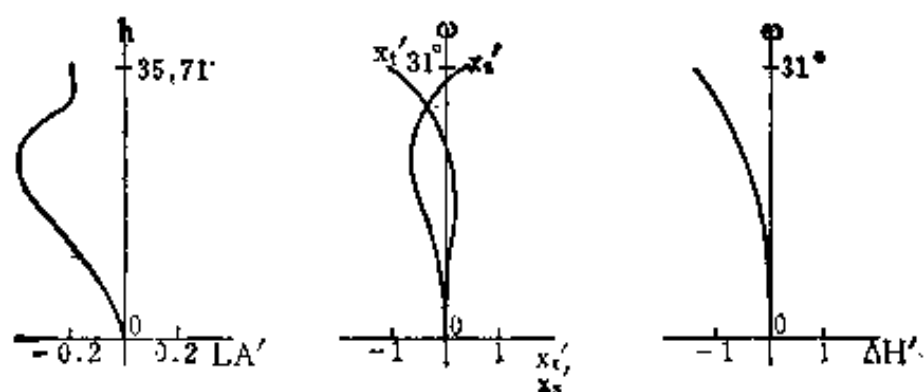
F.A.=±31°



序号	r	d	n	v	序号	r	d	n	v
1	129.722	5.833	1.56883	56.0	9	-52.778	2.773	1.78470	26.1
2	71.111	12.222			10	515.056	4.722		
3	138.889	5.833	1.54814	45.9	11	-314.667	11.111	1.77250	49.5
4	73.333	24.444			12	-87.500	0.139		
5	107.778	23.611	1.80411	46.4	13	-2777.778	10.556	1.77250	49.5
6	-116.667	44.444	1.50137	56.5	14	-151.250	0.139		
7	432.031	22.222*			15	291.669	9.444	1.71300	53.9
8	-74.194	12.222	1.80411	46.4	16	-304.097			

22.222\* = 7.000 + 15.222

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.501	0.199	0.192	-0.713	-1.211	60.1	-2.3%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{T1}$	$K'_{F0.7}$
100	-0.199	-1.404	-1.121	0.357	-1.478	-2.055	-0.294
70	-0.396	-0.648	-0.052	-0.637	0.585	-0.998	-0.065



编号: 03-02-033

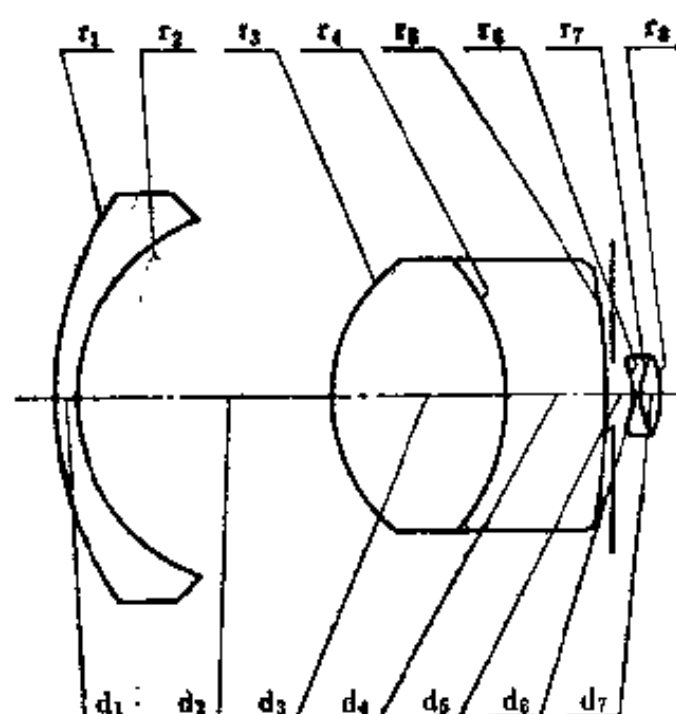
# 长后截距广角物镜

E.F.L=99.8

B.F.L=74.5

FNo.=4

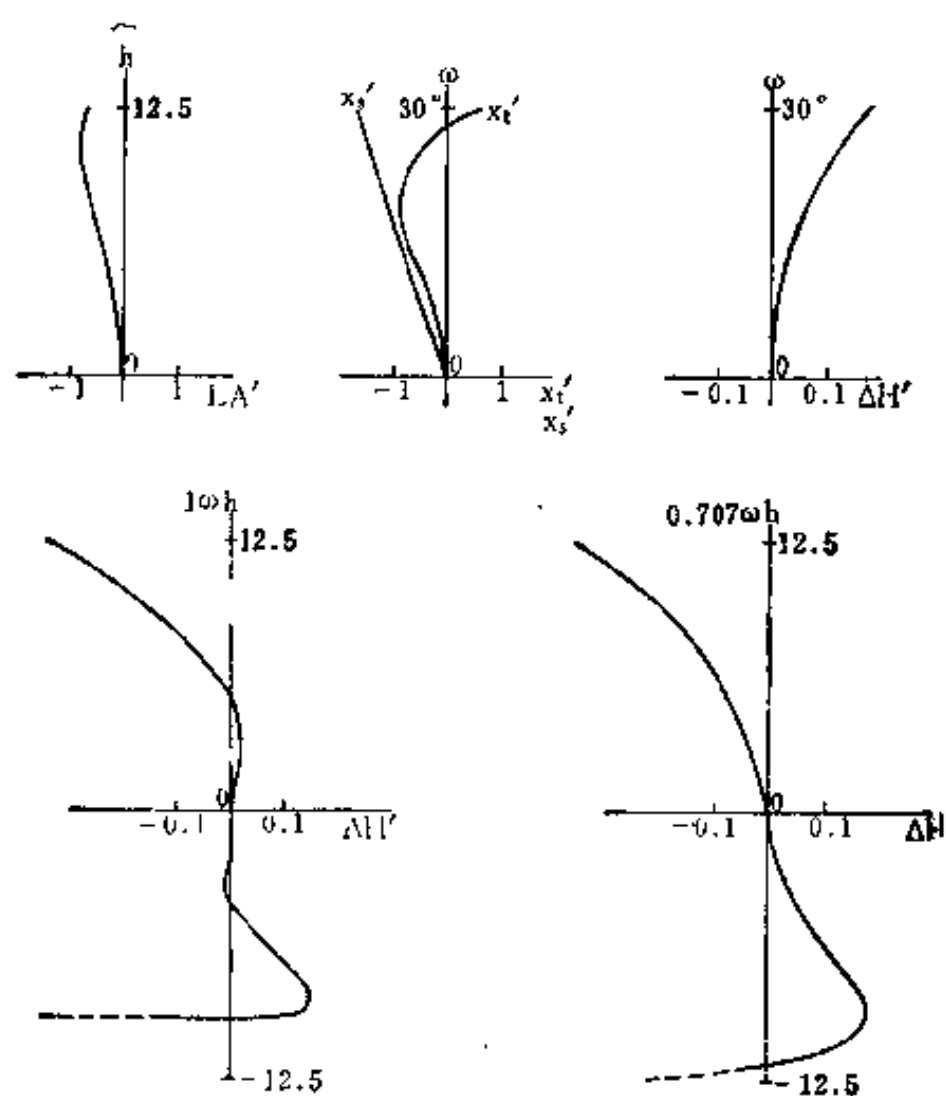
F.A.=±30°



序号	r	d	$n_d$	$v_d$	序号	r	d	$n_d$	$v_d$
1	99.80	5.94	1.76256	31.58	5	-204.50	7.43*		
2	53.61	71.20			6	-22.80	2.36	1.62408	36.11
3	48.17	48.95	1.67133	41.64	7	214.00	4.64	1.56181	60.96
4	-58.18	27.70	1.76859	26.31	8	-27.79			

$$7.43^* = 1.71 + 5.72$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0534	0.0039	-0.0067	-0.0835	0.0454	57.6	0.3%
h 或 $\omega$ %	LA'	$\Delta H'$	$x_t^s$	$x_s^s$	$x_t^s - x_s^s$	$K_{T1}^s$	$K_{T0.7}^s$
100	-0.725	0.170	0.621	-1.725	2.346		0.0180
70	-0.667	0.075	-0.893	-1.229	0.336	-0.4110	0.0019



编号: 03-02-035

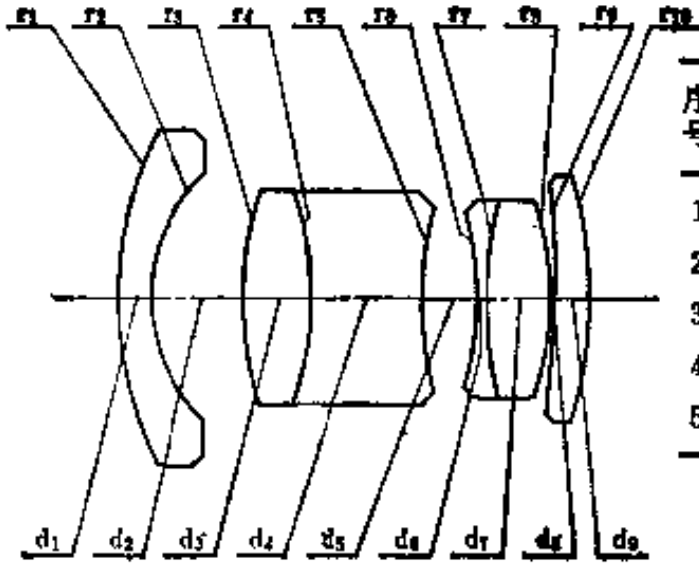
# 广角摄影物镜

E.F.L=1

B.F.L=1.0364

FNo.=2.8

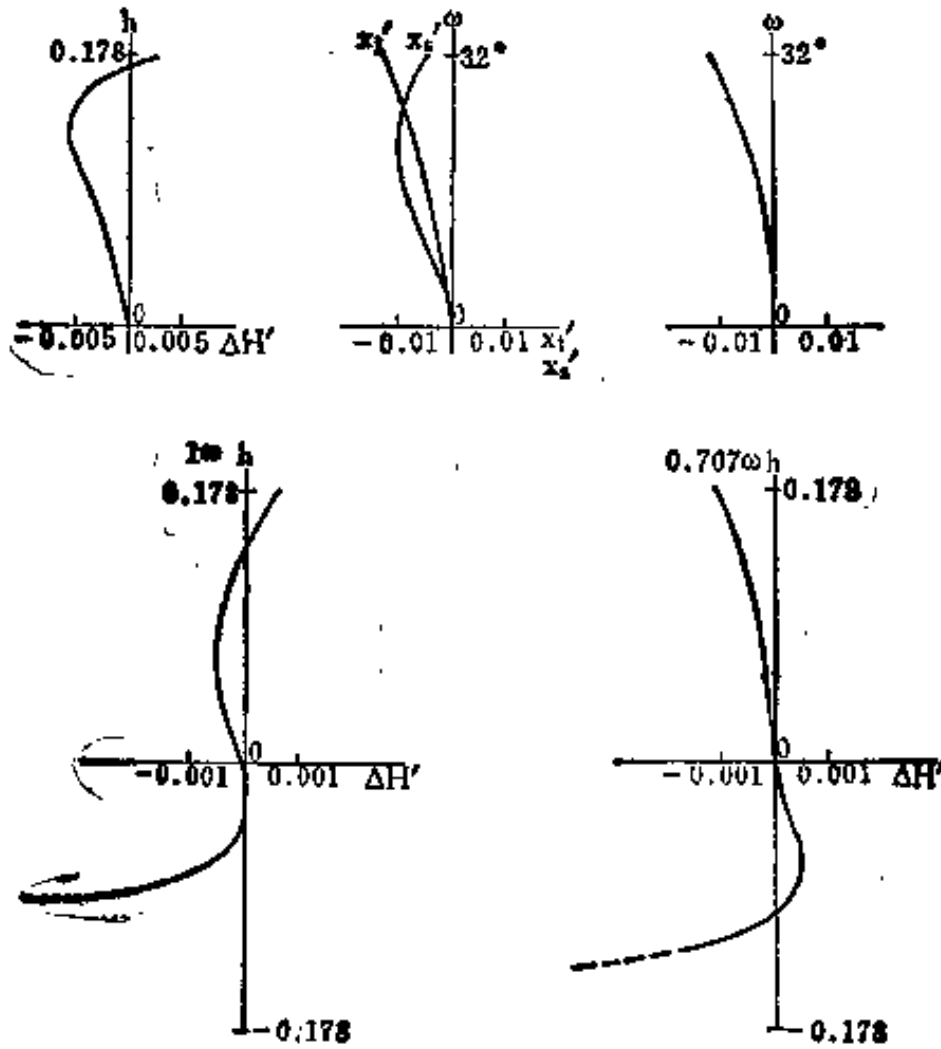
F.A.=±32°



序号	r	d	$n_D$	v	序号	r	d	$n_D$	v
1	0.71390	0.06805	1.47069	67.24	6	-0.62723	0.02450	1.80518	25.46
2	0.34518	0.19462			7	0.84232	0.13338	1.73520	41.00
3	0.74006	0.13822	1.72000	50.31	8	-0.53152	0.00272		
4	-0.69863	0.23681	1.50173	56.46	9	-5.83624	0.07349	1.74400	44.90
5	0.75612	0.10888*			10	-0.89233			

0.10888\* = 0.05000 + 0.05888

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00135	0.00059	0.00014	-0.00205	-0.00410	0.63	-1.8%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$\lambda'_1 - \lambda'_2$	$K'_{T1}$	$K'_{T0.7}$
100	0.00237	-0.0113	-0.0127	-0.0046	-0.0081	-0.030	-0.006
70	-0.00598	-0.0047	-0.0078	-0.0108	0.0030	-0.010	-0.001



编号: 03-02-036

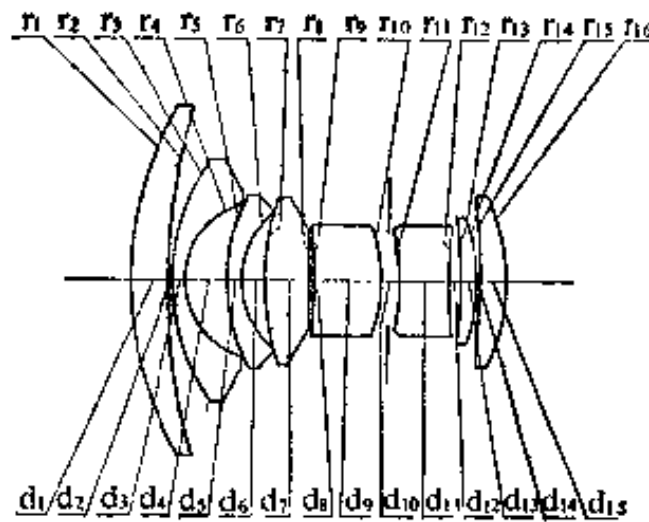
# 超 广 角 镜 头

E.F.L=1.

B.F.L=1.7321

FNo.=3.5

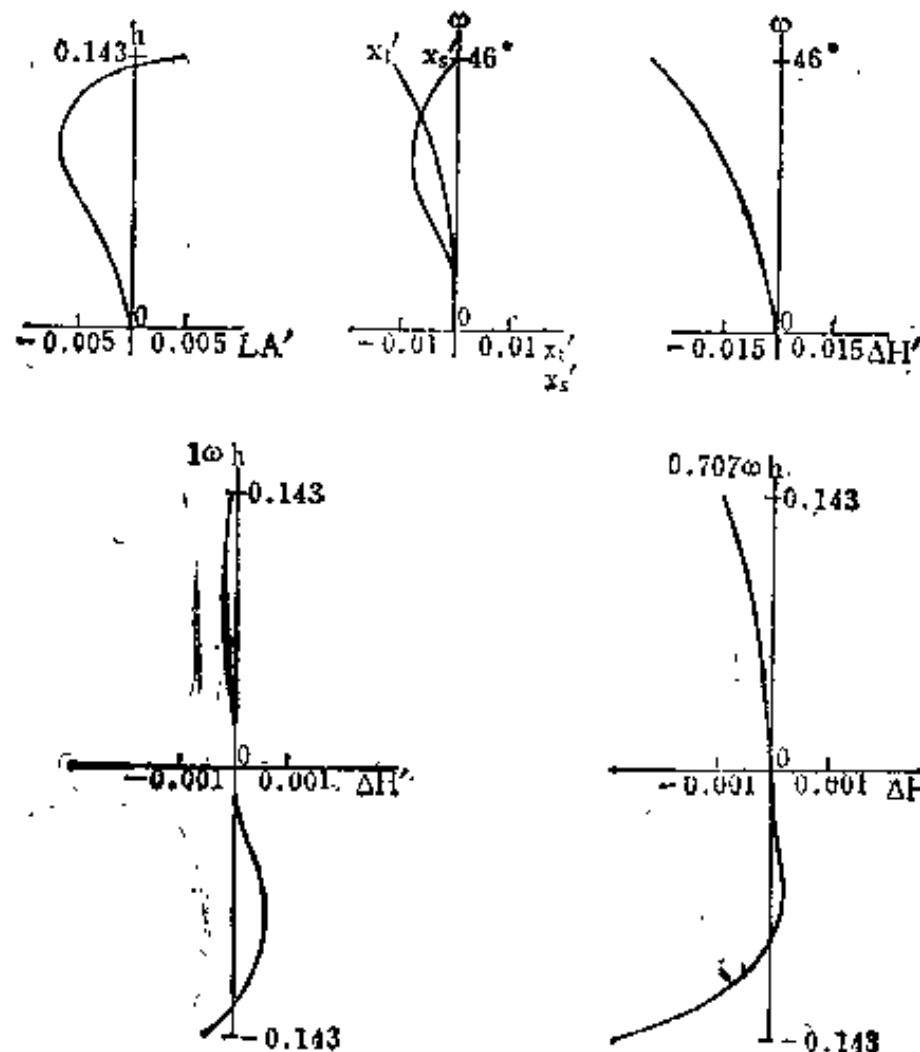
F.A.=±46°



序号	r	d	n	v	序号	r	d	n	v
1	1.6748	0.1856	1.7200	42.1	9	-28.0687	0.3550	1.6166	36.6
2	3.2590	0.0046			10	-0.6238	0.0743*		
3	0.9455	0.0696	1.6180	63.4	11	-1.0704	0.2506	1.8467	23.9
4	0.3825	0.2098			12	2.9904	0.0510		
5	0.9313	0.0696	1.7130	54	13	-2.3107	0.0849	1.6180	63.4
6	0.4333	0.1132			14	-0.7426	0.0070		
7	1.2940	0.2251	1.5955	39.2	15	-14.3292	0.1369	1.6180	63.4
8	-7.4482	0.0070			16	-0.9751			

$$0.0743^* = 0.0343 + 0.0400$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1ω)
	-0.00108	0.00109	-0.00088	-0.00087	-0.01018	1.04	-3.5%
h 或 ω %	LA'	ΔH'	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	0.0045	-0.0364	-0.0125	0.0003	-0.0128	-0.00029	0.00014
70	-0.0070	-0.0186	-0.0053	-0.0082	0.0029	-0.00195	-0.00036



编号: 03-02-038

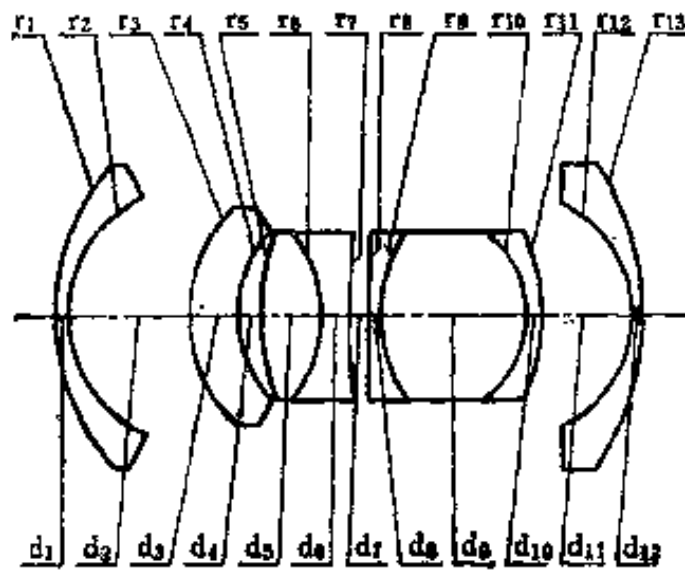
# 大孔径超广角镜头

E.F.L=1

B.F.L=0.3693

FNo. = 2.8

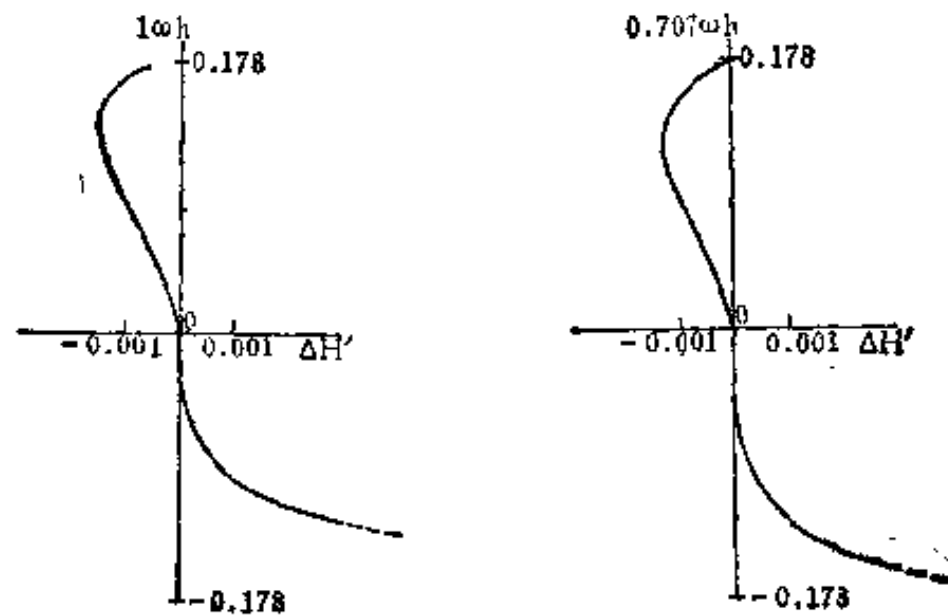
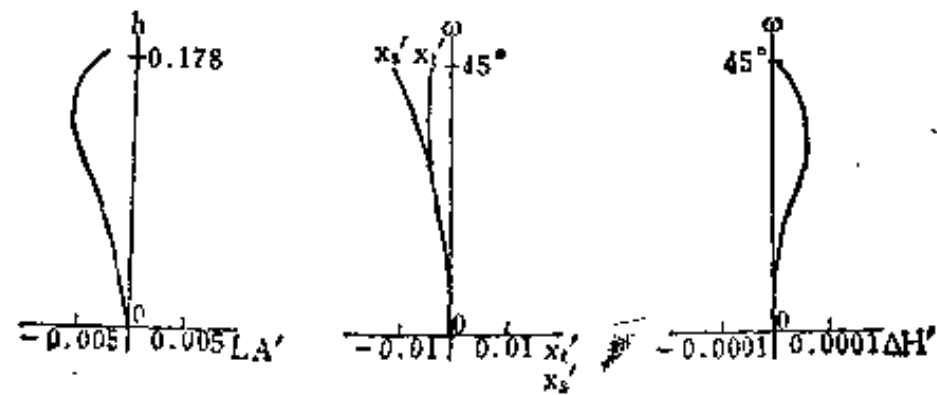
F.A. =  $\pm 45^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	0.8431	0.0394	1.73520	41.58	8	5.8838	0.0495	1.46450	65.70
2	0.4845	0.4580			9	0.4845	0.5396	1.68273	44.51
3	0.5436	0.1803	1.80518	25.43	10	-0.3821	0.0495	1.84666	23.82
4	0.4443	0.0821			11	-0.8133	0.3523		
5	0.9460	0.2202	1.78831	47.37	12	-0.4607	0.0329	1.71300	53.85
6	-0.4845	0.1067	1.63980	34.60	13	-0.9593			
7	2.1179	0.0694*							

0.0694\* = 0.0350 + 0.0344

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00081	-0.00021	-0.00015	-0.00037	0.00002	1	-0.0002%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-0.0037	-0.000002	-0.0037	-0.0110	0.0073	0.0100	0.00089
70	-0.0050	0.000070	-0.0048	-0.0059	0.0011	0.0030	-0.00020



编号: 03-02-039

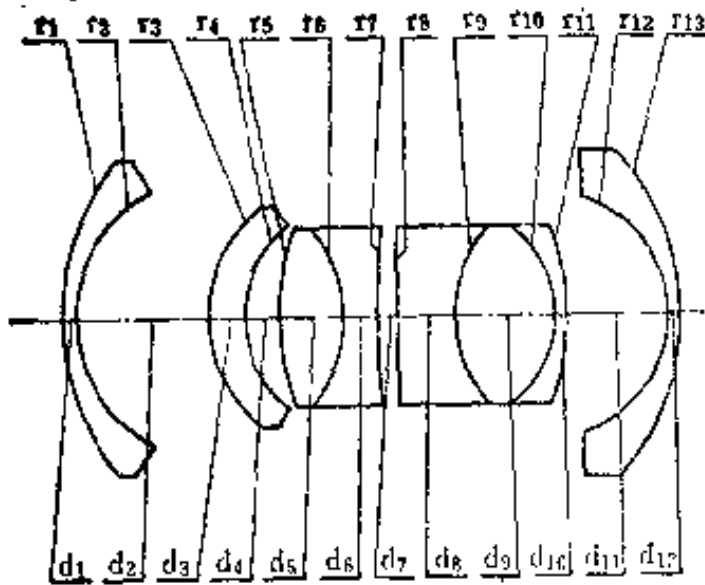
# 大孔径超广角镜头

E.F.L=1

B.F.L=0.3529

FNo.=2.8

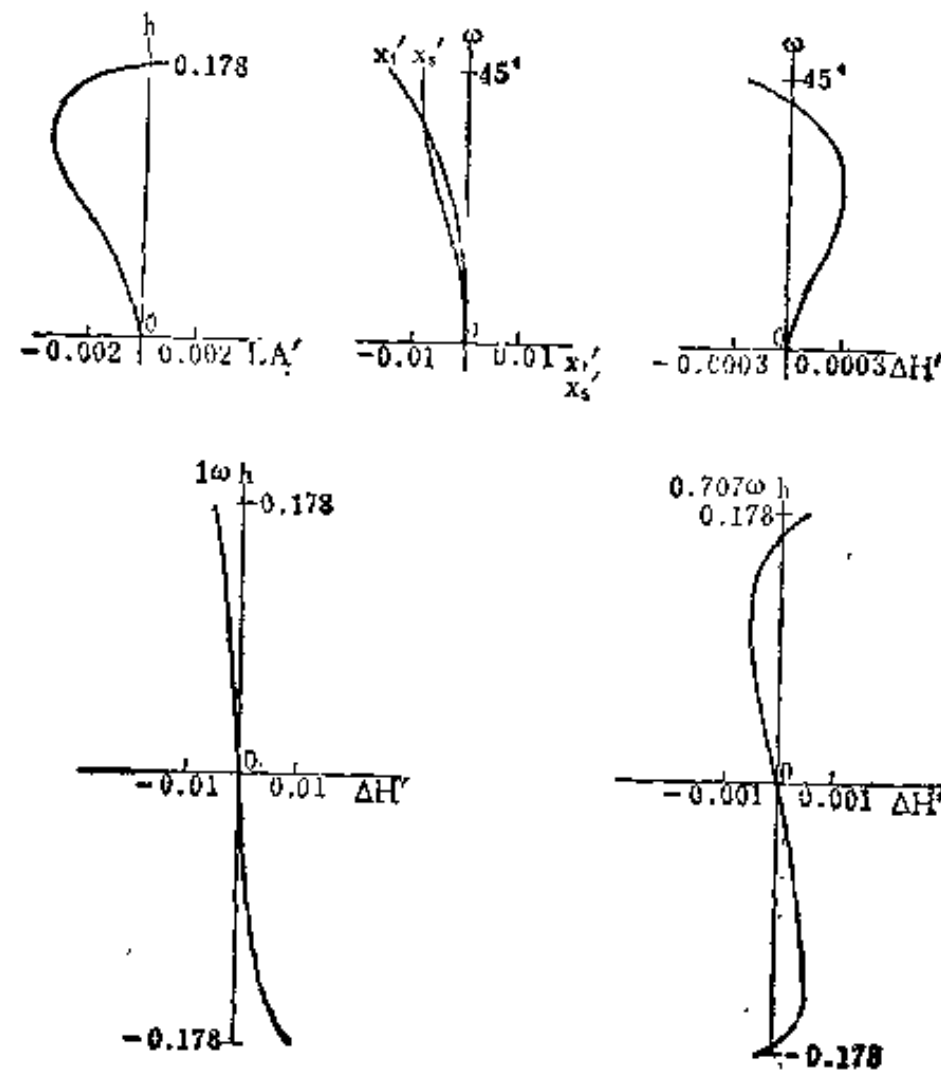
F.A.  $\approx \pm 45^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	0.91002	0.0517	1.58893	51.39	8	$\infty$	0.2222	1.62299	58.06
2	0.51913	0.5011			9	0.49094	0.3681	1.74400	44.77
3	0.50438	0.1330	1.78470	26.08	10	-0.40358	0.0310	1.84666	23.82
4	0.41531	0.1266			11	-0.87148	0.3849		
5	0.97786	0.2299	1.78831	47.37	12	-0.45932	0.0336	1.71300	53.85
6	-0.51913	0.1318	1.65446	33.67	13	-0.92317			
7	4.46321	0.0697*							

$$0.0697^* = 0.0350 + 0.0347$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00067	-0.00005	-0.00019	-0.00055	0.00031	1	-0.03%
h 或 $\omega$ %	$LA'$	$\Delta H'$	$\Delta i$	$x'_2$	$x_1 - x'_2$	$K'_{T1}$	$K'_{10.7}$
100	0.00013	-0.00029	-0.0152	-0.0092	-0.0060	0.002720	0.000038
70	-0.00350	0.00033	-0.0052	-0.0068	0.0016	0.000099	0.000030



编号: 03-02-040

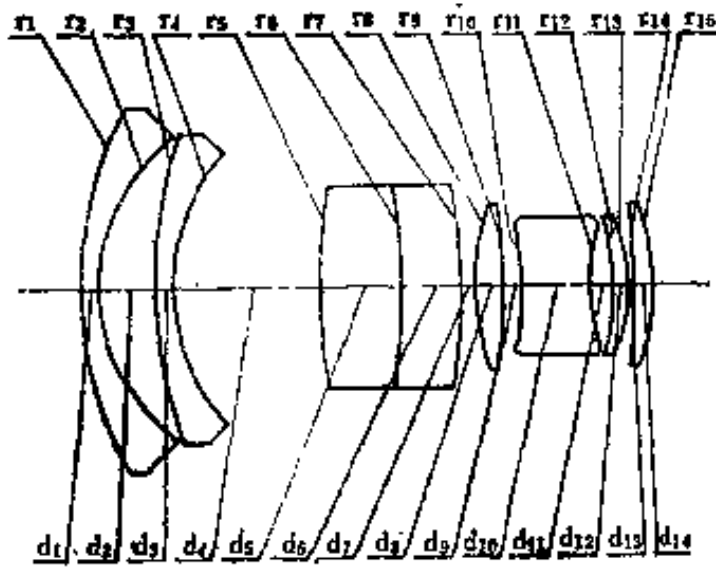
# 反远距型广角镜头

E.F.L=99.99

B.F.L=130.06

FNo.=2.8

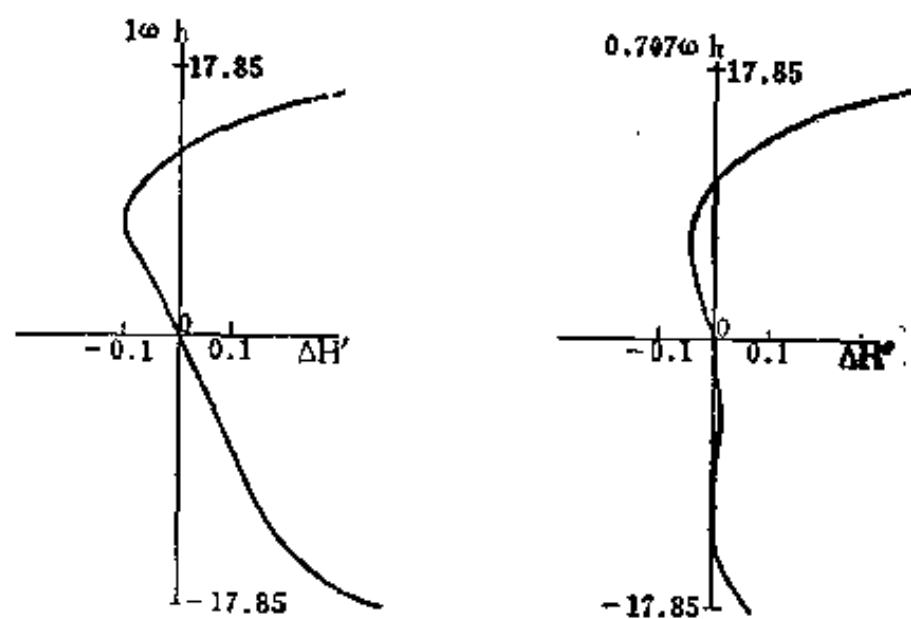
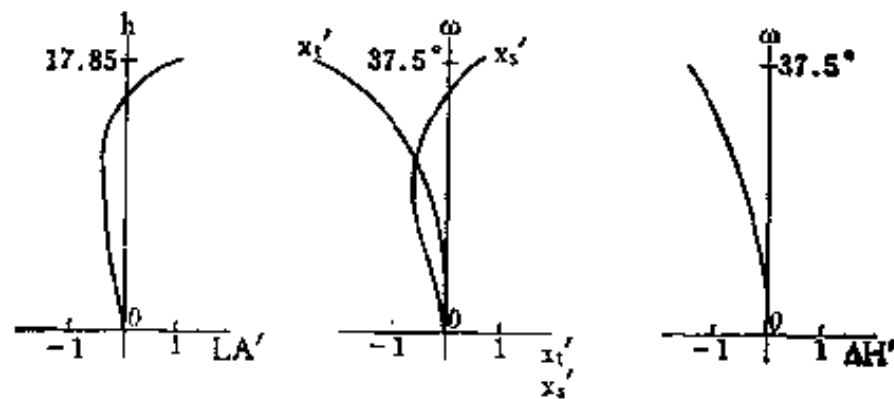
F.A.=±37.5°



序号	r	d	n	v	序号	r	d	n	v
1	160.34	6.94	1.51633	64.1	9	-261.91	8.67*		
2	78.42	22.55			10	-122.46	27.75	1.80518	25.4
3	187.33	6.94	1.58913	61.1	11	90.19	8.60		
4	81.33	62.44			12	-109.64	7.28	1.69350	50.8
5	242.83	34.69	1.62004	36.3	13	-68.62	0.49		
6	-242.83	24.28	1.51633	64.1	14	-648.62	8.67	1.71300	54.0
7	-222.49	5.20			15	-118.08			
8	103.19	11.45	1.81554	44.5					

$$8.67^{\circ} = 4.00 + 4.67$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.1071	-0.0178	0.0215	-0.1259	-0.5852	76.01	-1.9%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K_{T1}^*$	$K_{T0.7}^*$
100	0.974	-1.446	-2.567	0.503	-3.075	0.498	0.086
70	-0.357	-0.659	-0.679	-0.536	-0.143	0.390	0.030



编号: 03-02-042

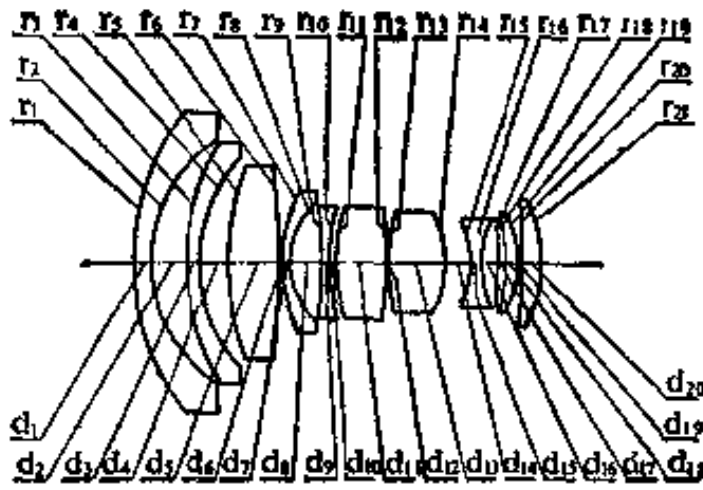
# 反远距型超广角物镜

E. F. L = 100

B. F. L = 185.4

FNo. = 8.3

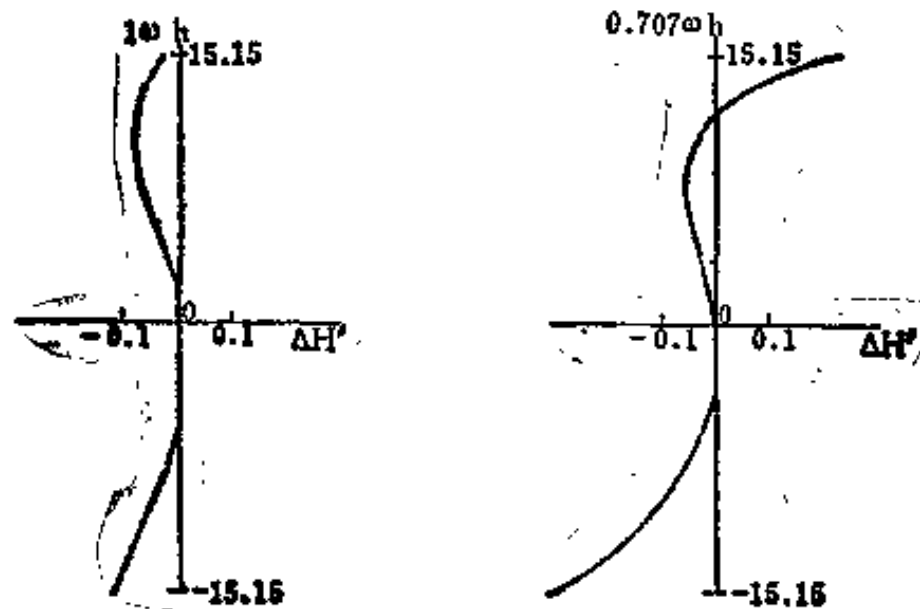
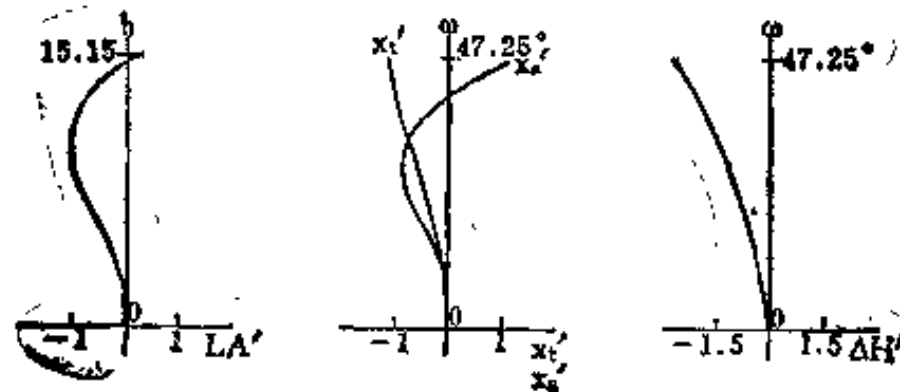
F. A. =  $\pm 47.25^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	176.83	13.65	1.72000	50.3	12	-570.70	0.49		
2	102.62	26.72			13	178.68	40.97	1.60717	40.2
3	171.91	9.56	1.71700	47.9	14	-99.96	19.06*		
4	113.18	21.50			15	-66.77	7.26	1.74000	28.2
5	214.61	38.13	1.69680	55.6	16	81.43	12.38	1.58144	40.8
6	-1370.00	0.98			17	-850.00	4.73		
7	118.52	5.27	1.72000	50.3	18	-152.37	12.87	1.69100	54.8
8	55.05	22.43			19	-69.18	0.49		
9	-1499.00	5.61	1.69680	55.6	20	-937.80	14.29	1.64000	60.2
10	149.72	4.39			21	-108.71			
11	160.19	38.86	1.68893	31.2					

$$19.06^* = 9.05 + 10.01$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.1482	0.0529	0.0299	-0.1307	-0.9856	107.6	-2.5%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{f0.7}$
100	0.243	-2.662	-1.121	1.232	-2.353	-0.0765	-0.0682
70	-0.976	-1.511	-0.771	-0.881	0.110	-0.0264	-0.0806





编号: 03-02-043

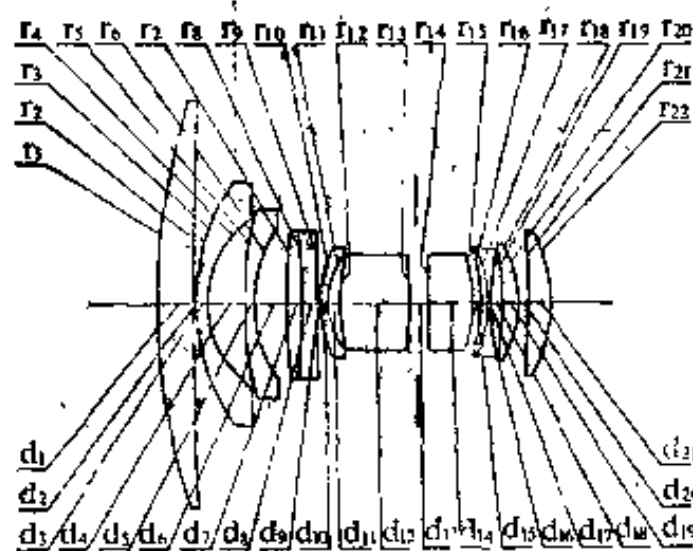
# 反远距型超广角物镜

E.F.L = 100

B.F.L = 203

FNo. = 3.5

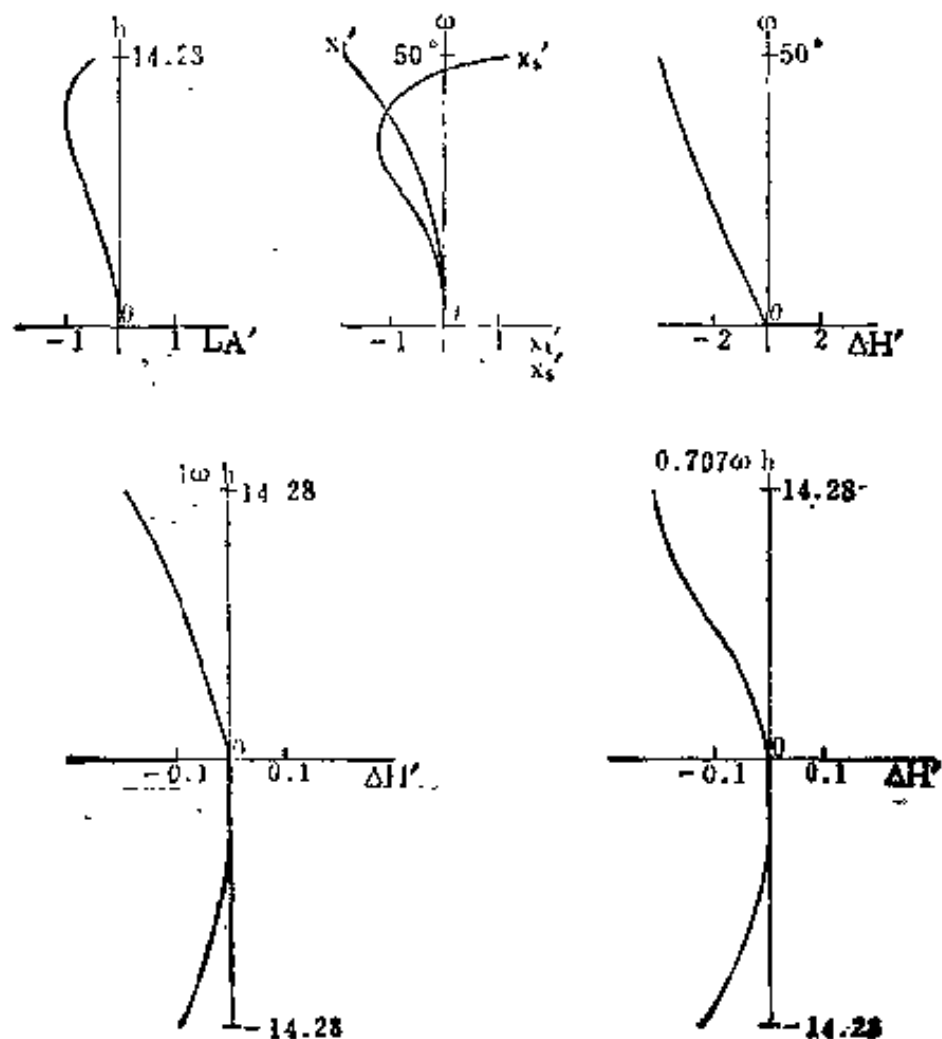
F.A. =  $\pm 50^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	495.86	20.90	1.80610	40.8	12	160.76	50.59	1.56732	42.83
2	1096.11	1.09			13	-585.01	13.10*		
3	156.51	8.73	1.67000	57.33	14	648.73	34.60	1.63980	34.58
4	74.22	26.74			15	-99.14	4.42		
5	258.96	8.62	1.67000	57.33	16	-137.99	5.46	1.80400	46.65
6	101.01	23.14			17	-109.12	3.55	1.80520	25.43
7	426.22	12.28	1.75520	27.51	18	252.34	5.73		
8	-574.85	10.91	1.83400	37.19	19	-417.21	13.10	1.61800	63.38
9	-8345.24	1.09			20	-94.77	6.82		
10	103.21	5.46	1.69680	55.62	21	-958.20	16.10	1.61800	63.38
11	54.38	9.88			22	-119.64			

13.10\* = 7.00 + 6.10

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.1289	0.0874	-0.0033	-0.1192	-1.6933	119.4	-3.5%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{f1}$	$K'_{f0.7}$
100	-0.493	-4.187	-1.869	1.225	-3.094	-0.1364	-0.0710
70	-1.041	-3.089	-0.833	-1.335	0.502	-0.1713	-0.1116



编号: 03-02-044

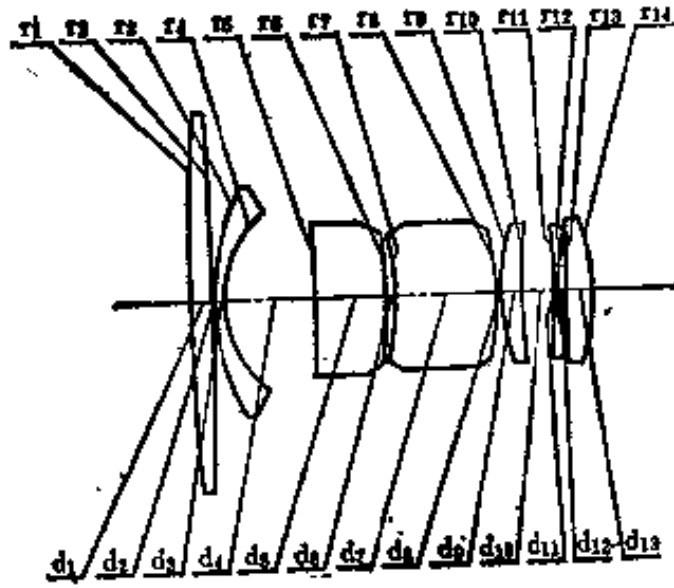
# 反远距型广角镜头

E.F.L=99.6

B.F.L=141.19

FNo. =4

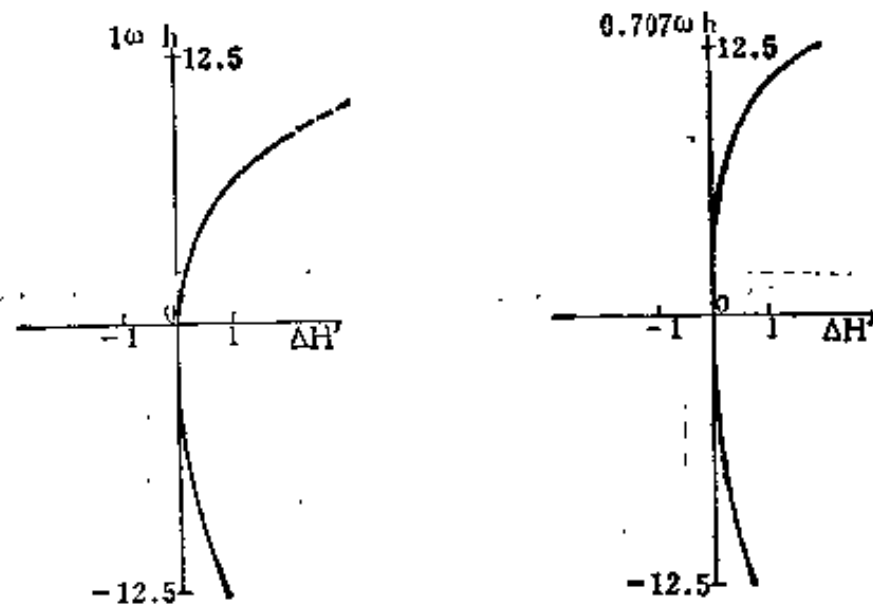
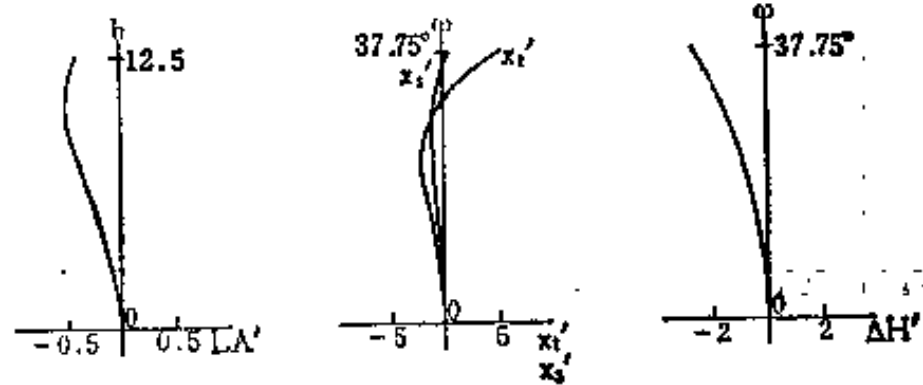
F.A. =  $\pm 87.75^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	865.02	6.83	1.67003	47.3	8	-77.90	0.88		
2	-1424.08	1.05			9	67.11	6.78	1.72600	53.6
3	72.62	3.82	1.61800	63.4	10	238.28	10.35		
4	35.36	27.33			11	-370.33	0.97	1.75520	27.5
5	-463.53	22.75	1.66892	45.0	12	70.66	2.75		
6	-114.16	2.67*			13	$\infty$	7.90	1.72600	53.6
7	-68.35	31.42	1.67790	55.3	14	-64.98			

2.67\* = 1.30 + 1.37

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0390	0.0127	-0.0498	-0.0486	-0.7537	75.7	-3.8%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{T1}$	$K'_{T0.7}$
100	-0.438	-2.851	5.505	0.434	5.071	3.481	1.269
70	-0.458	-1.255	-1.873	-1.110	-0.763	1.283	0.450



编号: 03-02-045

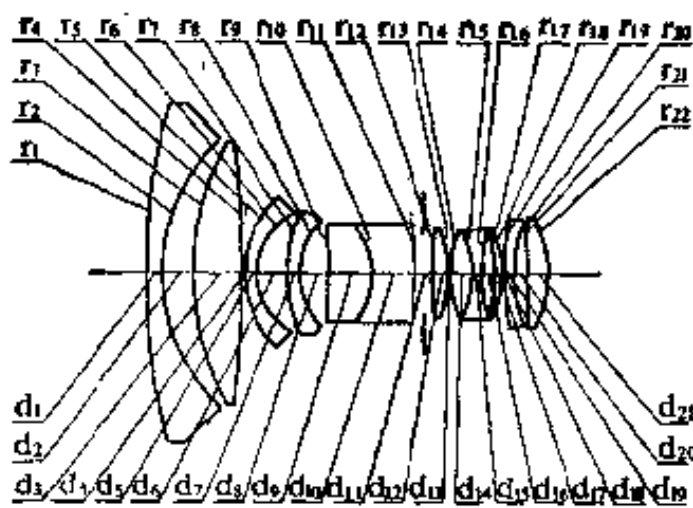
# 超广角摄影物镜

E. F. L = 100

B. F. L = 179.39

FNo. = 3.5

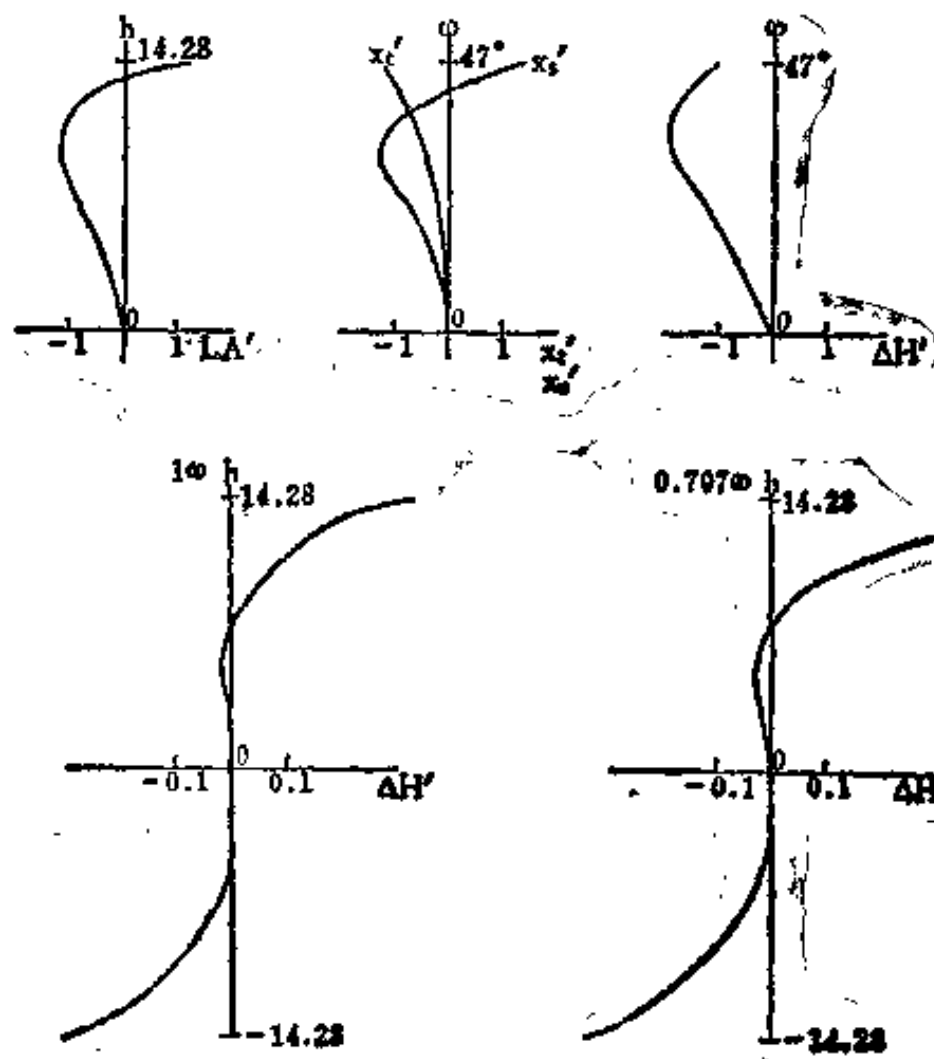
F. A. =  $\pm 47^\circ$



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	519.231	11.06	1.64000	60.2	12	649.038	10.58	1.58913	61.2
2	138.498	22.12			13	-106.296	0.48		
3	209.135	37.50	1.51633	64.1	14	83.111	16.83	1.58913	61.2
4	-757.390	0.72			15	-73.077	7.69	1.81554	44.4
5	78.365	8.99	1.64000	60.2	16	128.104	7.69		
6	49.066	21.04			17	-192.308	7.21	1.51823	59.0
7	117.788	8.99	1.64000	60.2	18	-78.832	0.48		
8	58.350	20.67			19	403.846	6.73	1.76182	26.5
9	-384.615	31.25	1.63636	35.4	20	108.806	8.17		
10	-55.238	31.25	1.58913	61.2	21	743.971	16.83	1.51190	58.2
11	-619.439	14.42*			22	-89.216			

14.42\* = 7.00 + 7.42

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	Hf	QP(100)
	-0.1795	0.0127	0.0856	-0.1549	-1.3714	107.2	-1%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{f1}$	$K'_{f0.7}$
100	1.223	-1.070	-1.179	1.447	-2.626	0.0187	-0.0184
70	-1.216	-2.068	-0.532	-1.274	0.742	0.2588	-0.0135



编号: 03-02-046

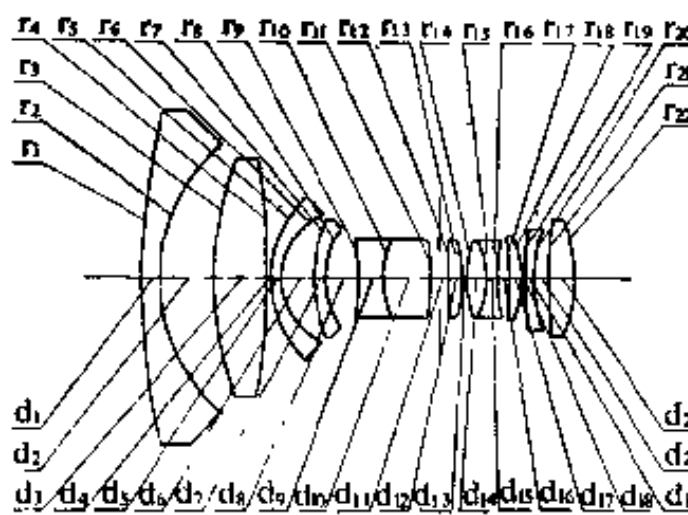
# 超广角摄影物镜

E. F. L = 98

B. F. L = 183.85

FNo. = 3.5

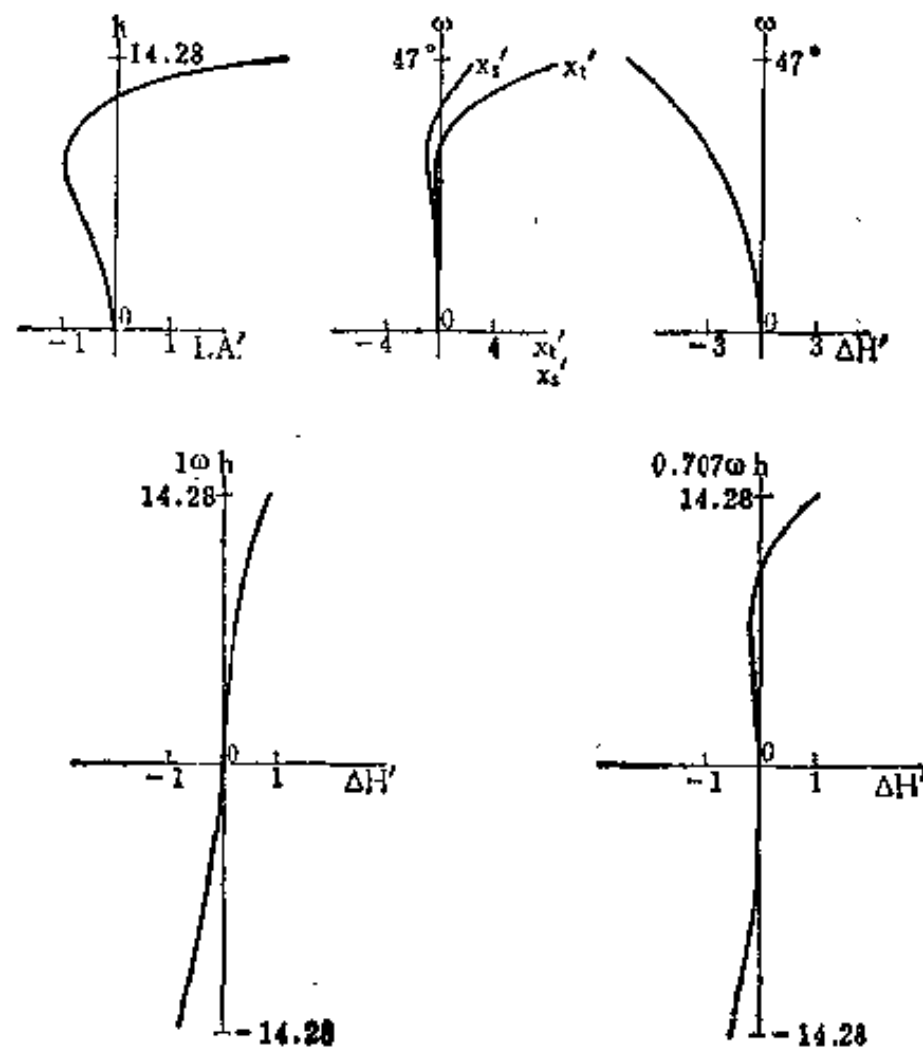
F. A. =  $\pm 47^\circ$



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	519.231	13.85	1.64000	60.2	12	3605.769	11.06	1.58913	61.2
2	130.205	40.86			13	-113.405	0.24		
3	250.000	38.46	1.51633	64.1	14	83.137	16.83	1.58913	61.2
4	-569.697	0.24			15	-69.711	8.65	1.81554	44.4
5	81.731	8.99	1.64000	60.2	16	131.757	8.65		
6	51.734	24.04			17	-199.519	9.61	1.51633	64.1
7	121.154	8.99	1.64000	60.2	18	-77.619	0.48		
8	60.657	23.08			19	353.365	6.73	1.80518	25.5
9	-173.077	19.23	1.51633	64.1	20	109.566	9.61		
10	80.288	33.65	1.62588	35.6	21	649.038	19.23	1.51633	64.1
11	-239.723	13.46*			22	-97.828			

$$13.46^* = 7.00 + 6.46$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.1913	-0.1082	0.0372	-0.1215	-1.6599	105.07	-7%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{f1}$	$K'_{f0.7}$
100	3.283	-7.418	8.412	2.004	6.408	0.0968	-0.0112
70	-0.959	-2.965	0.538	-0.709	1.247	0.3329	-0.0414



编号: 03-02-047

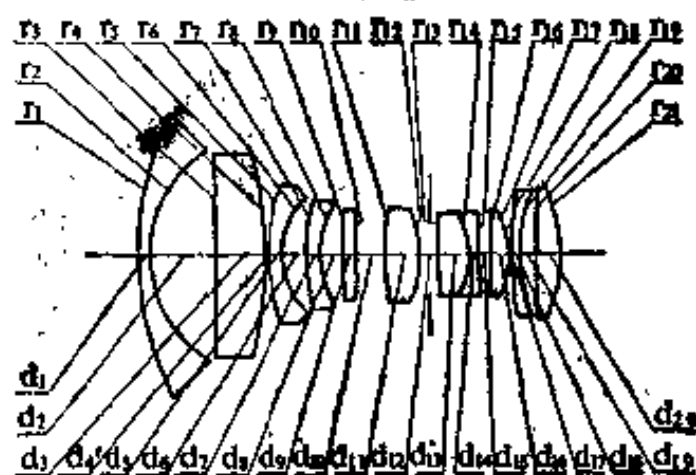
# 具有长后截距的超广角物镜

E. F. L = 99.99

B. F. L = 199.71

FNo. = 3.5

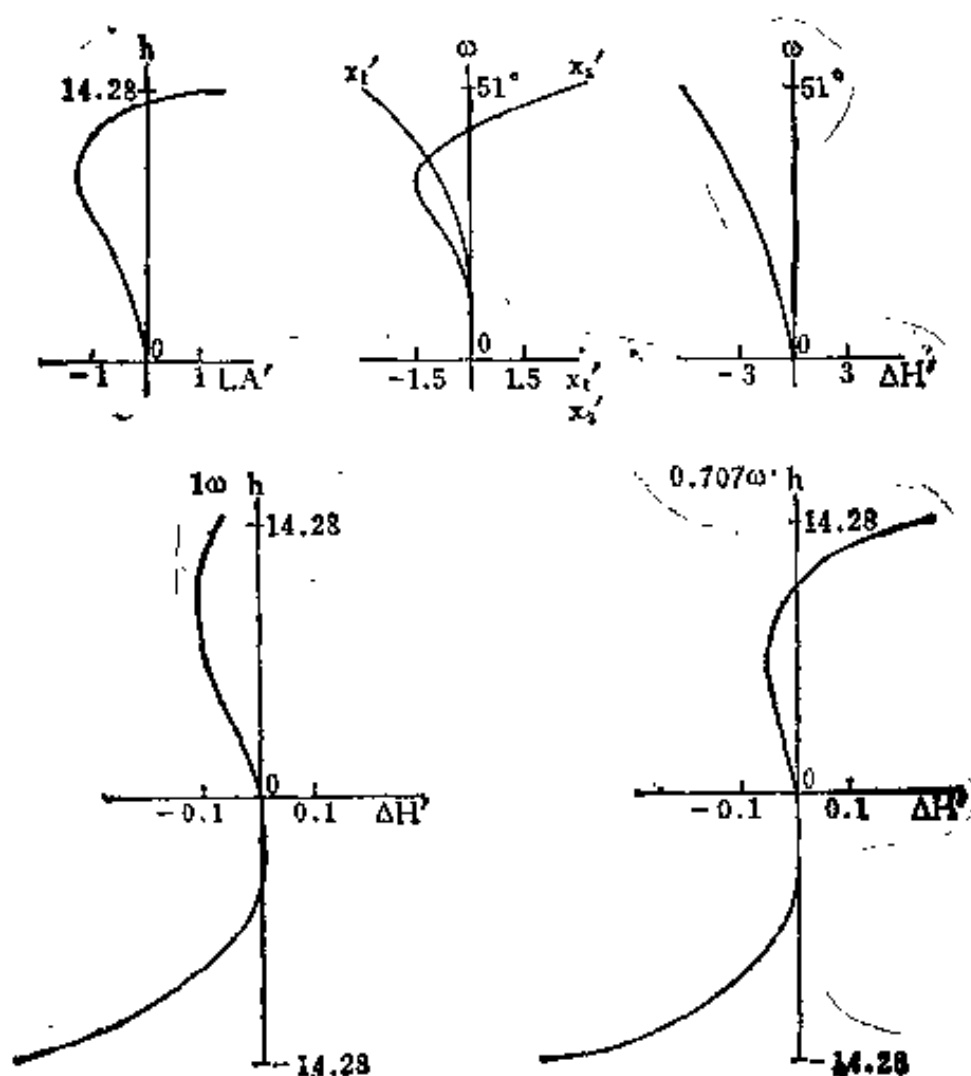
F. A. =  $\pm 51^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	229.52	8.84	1.64000	60.2	12	-95.77	15.68*		
2	94.56	47.57			13	424.27	23.24	1.51633	64.1
3	$\infty$	38.89	1.51633	64.1	14	-58.17	6.40	1.83400	37.2
4	-312.73	1.62			15	253.87	8.11		
5	150.12	9.82	1.64000	60.2	16	-1502.70	14.59	1.48749	70.1
6	56.47	18.91			17	-72.53	0.54		
7	167.82	9.62	1.51633	64.1	18	324.32	5.78	1.80518	25.4
8	65.37	16.22			19	121.74	10.81		
9	333.50	9.62	1.64000	60.2	20	1043.14	18.92	1.51633	64.1
10	-1093.72	21.62			21	-106.74			
11	181.10	25.40	1.62588	35.7					

$$15.68^* = 8.00 + 7.68$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.1917	-0.0822	0.0469	-0.1748	-1.7521	123.5	-4.8%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{f1}$	$K'_{f0.7}$
100	1.250	-5.944	-3.114	3.174	-6.288	-0.2606	-0.1305
70	-1.302	-3.344	-0.976	-1.595	0.619	-0.1109	-0.0696



编号: 03-02-048

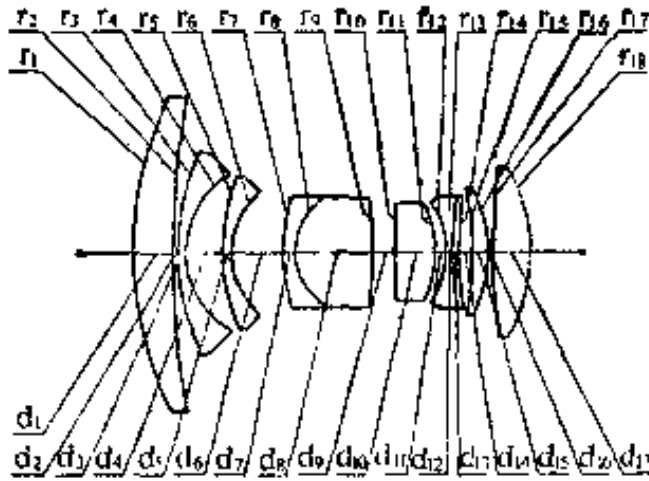
# 大孔径超广角镜头

E. F. L = 100.6

B. F. L = 191.88

FNo. = 2.4

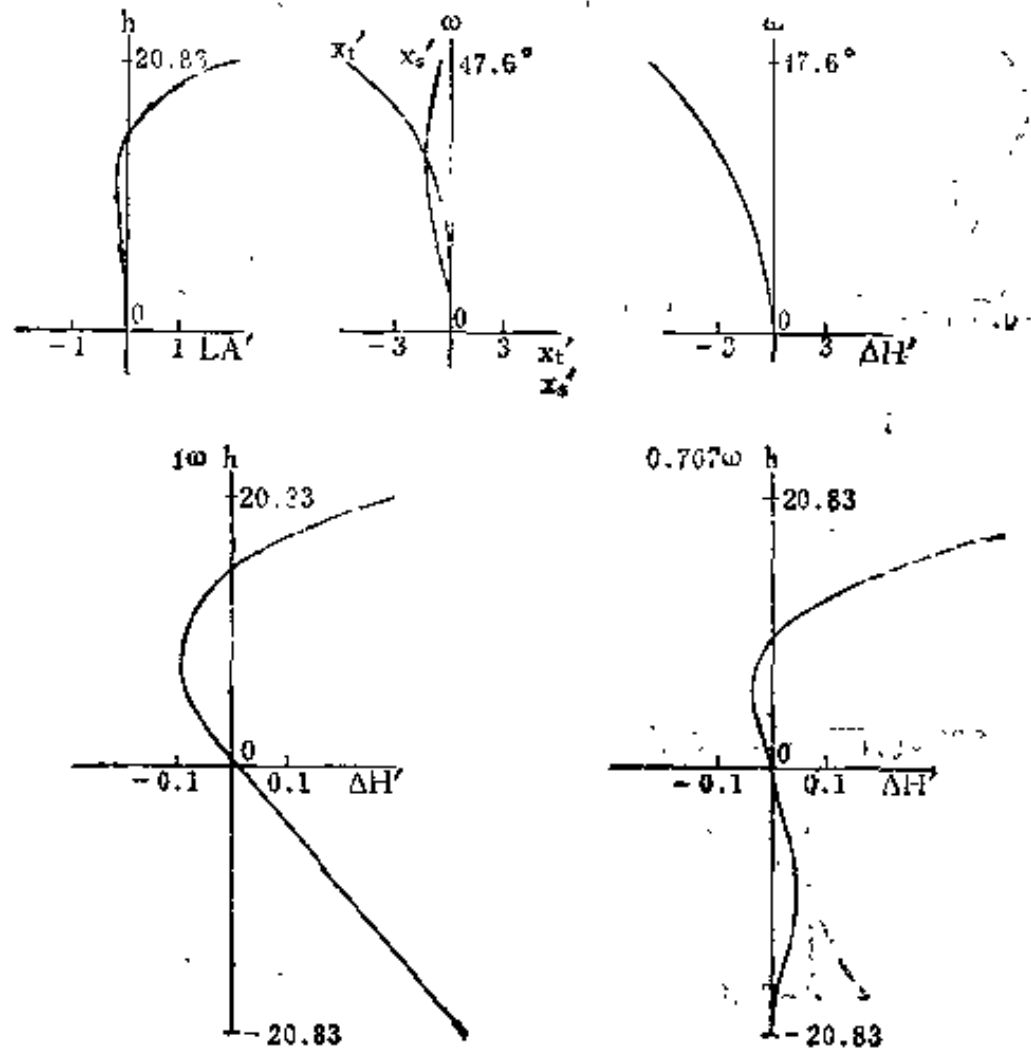
F. A. =  $\pm 47.6^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	326.282	40.61	1.64000	60.2	10	740.533	39.45	1.65160	58.6
2	949.626	0.49			11	-100.524	10.47		
3	237.067	9.98	1.78590	44.2	12	-81.827	4.97	1.80518	25.4
4	88.291	38.62			13	228.834	7.50	1.48749	70.1
5	230.832	5.99	1.58913	61.1	14	340.745	9.88		
6	80.421	50.89			15	-409.070	21.91	1.51633	64.1
7	276.609	11.59	1.75700	47.9	16	-104.702	0.48		
8	60.873	78.01	1.74950	35.2	17	598.995	36.08	1.77250	49.6
9	-349.170	20.89*			18	-162.102			

20.89\* = 4.00 + 16.89

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.1267	0.0170	0.1018	-0.1993	-2.6229	110	-6.3%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$Kf_1$	$K_{T0.7}$
100	2.118	-6.910	-5.969	-0.426	-5.543	0.3605	0.1510
70	-0.020	-3.189	-1.431	-1.230	-0.201	0.6205	0.1320



编号: 03-02-049

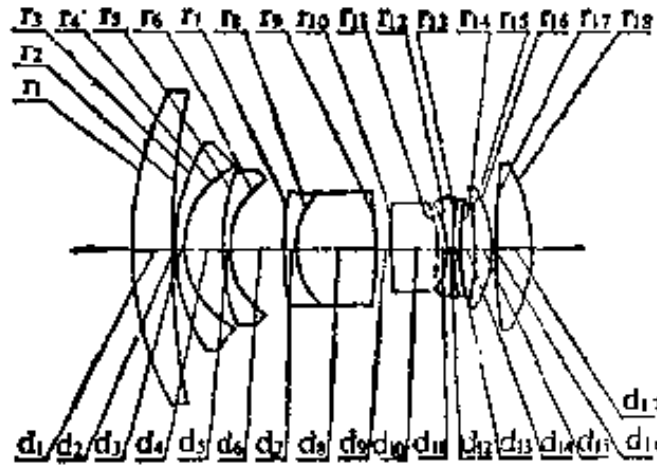
# 大孔径广角镜头

E. F. L = 100

B. F. L = 182.54

FN<sub>0</sub> = 2.4

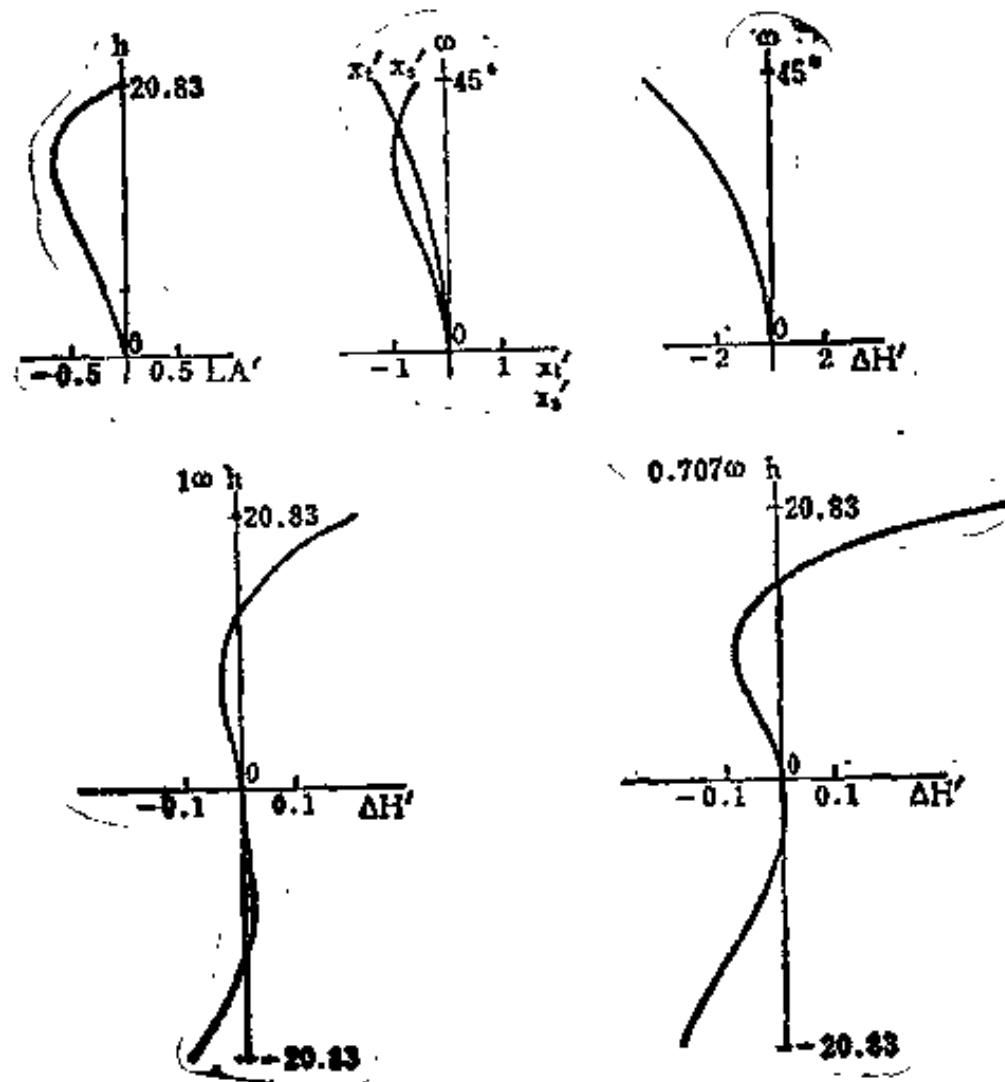
F. A. = ±45°\*\*



序号	$r$	$d$	$n$	$v$	序号	$r$	$d$	$n$	$v$
1	316.035	40.70	1.64100	56.9	10	742.100	45.85	1.65150	58.6
2	860.727	0.50			11	-99.663	10.00		
3	192.992	10.00	1.78800	47.5	12	-81.765	6.00	1.80518	25.4
4	85.423	38.70			13	243.745	6.00	1.48742	70.1
5	224.740	6.00	1.58913	61.1	14	307.472	9.90		
6	79.827	54.40			15	-409.540	21.95	1.56873	63.1
7	273.245	11.60	1.75500	52.5	16	-112.317	0.50		
8	76.470	78.15	1.74950	35.2	17	577.870	36.15	1.77250	49.6
9	-358.257	16.05*			18	-160.725			

16.05\* = 8.00 + 8.05

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.1904	0.0509	0.1287	-0.2063	-2.1410	100	-4.8%
$h$ 或 $\omega$ %	$LA'$	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K_{T1}$	$K_{T0.7}$
100	-0.068	-4.825	-1.281	-0.466	-0.815	0.0613	0.0042
70	-0.648	-2.266	-0.614	-1.008	0.394	0.1318	-0.0579



编号, 03-02-050

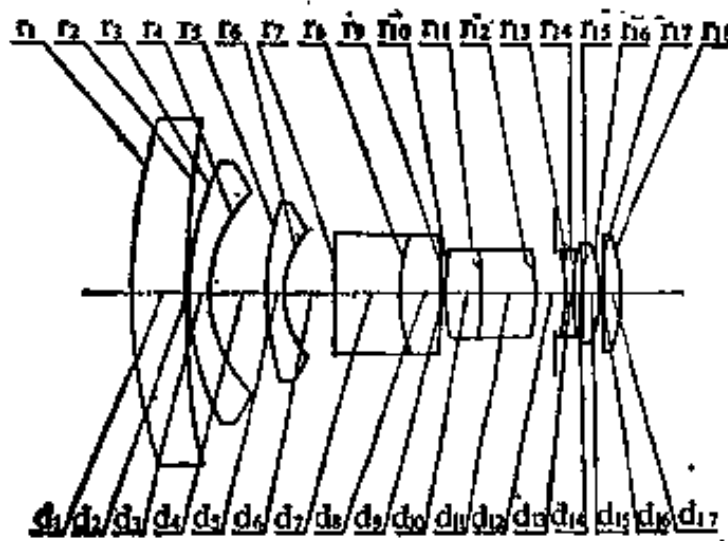
# 具有长后截距的超广角物镜

E. F. L = 100

B. F. L = 173.92

FNo. = 4

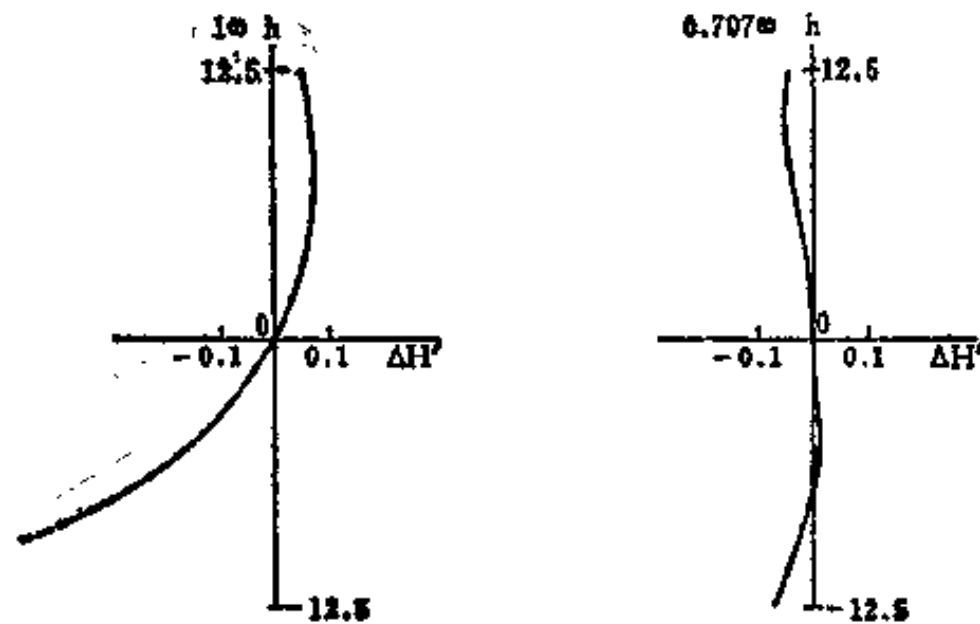
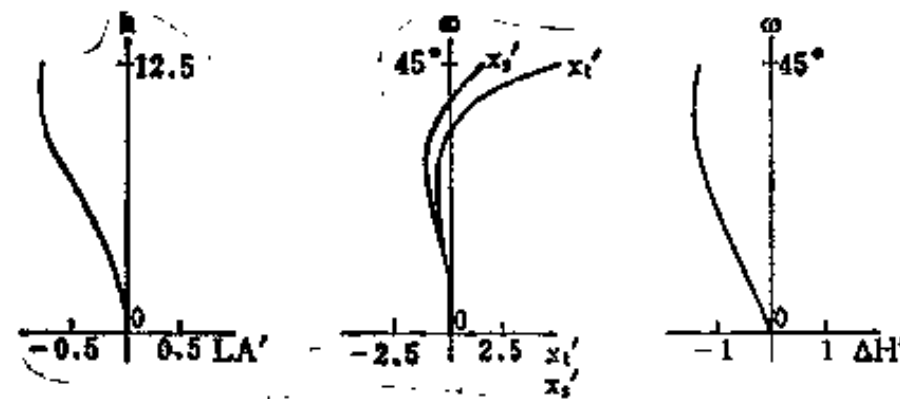
F. A. =  $\pm 45^\circ$



序号	r	d	$n_d$	$v_d$	序号	r	d	$n_d$	$v_d$
1	285.31	27.68	1.52736	64.31	10	112.07	18.54	1.61114	45.92
2	887.45	0.46			11	-346.45	26.76	1.53430	48.66
3	138.37	10.15	1.62287	60.06	12	-100.72	13.84*		
4	72.02	27.68			13	-72.25	5.08	1.74618	27.97
5	146.90	8.30	1.66104	57.08	14	216.52	3.23		
6	48.35	25.38			15	-259.71	9.23	1.62287	60.06
7	$\infty$	32.30	1.62287	60.06	16	-65.93	0.46		
8	81.52	20.30	1.53530	45.67	17	$\infty$	9.23	1.59142	61.03
9	-274.84	0.92			18	-97.77			

$$13.84^* = 5.00 + 8.84$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.0587	0.0988	-0.1549	-0.0601	-0.4946	100	-1.3%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{f0.7}$
100	-0.792	-1.269	5.208	1.422	3.786	-0.332	-0.162
70	-0.712	-1.337	-0.376	-0.805	0.429	-0.071	-0.037





编号: 03-02-051

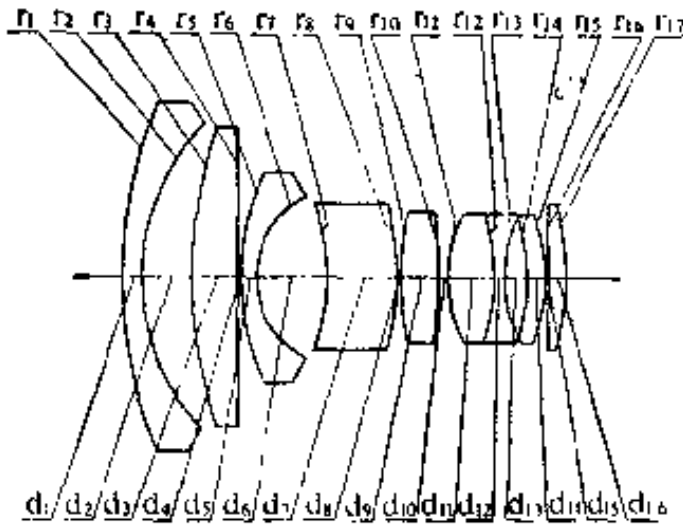
# 具有长后截距的小型广角物镜

E. F. L = 98.56

B. F. L = 147.9

FNo. = 3.5

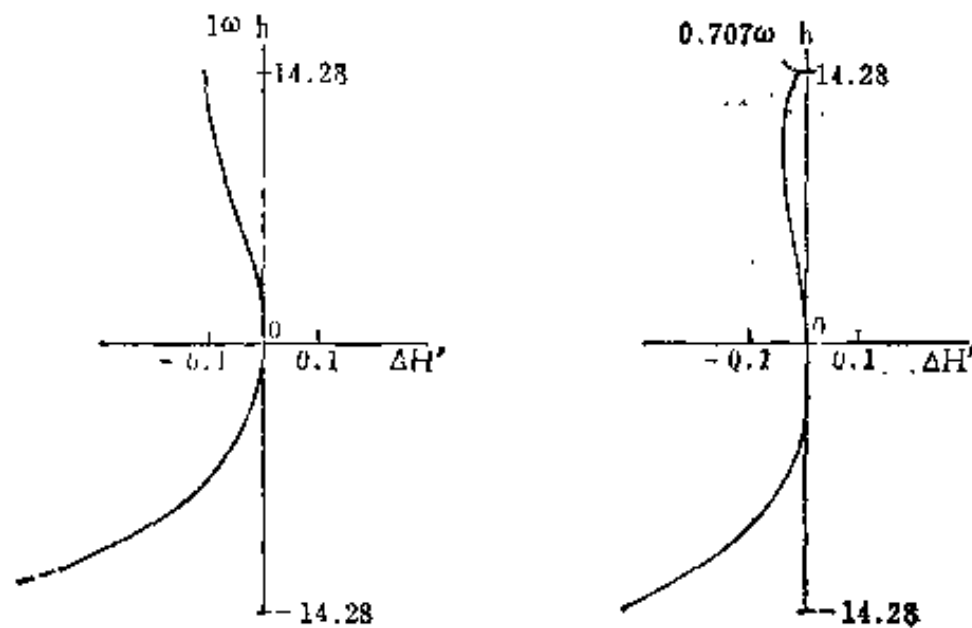
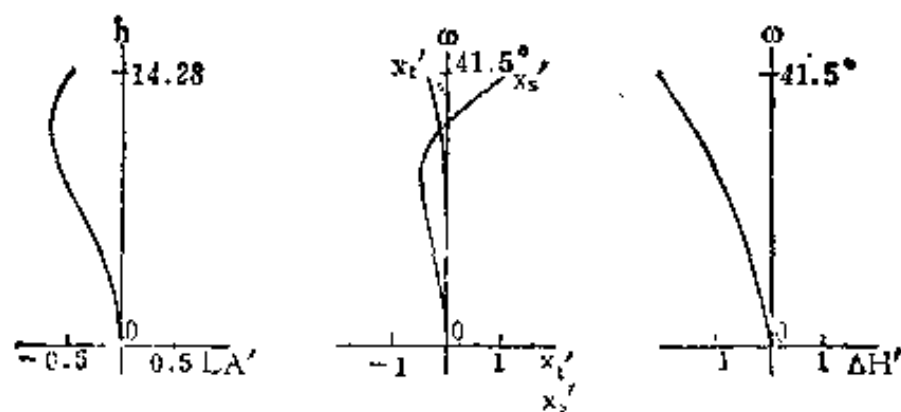
F. A. =  $\pm 41.5^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	221.0	10.0	1.51633	64.1	10	-247.9	5.0		
2	109.6	24.0			11	68.5	22.0	1.56883	56.0
3	228.0	23.5	1.83630	30.4	12	-116.0	4.5	1.69895	30.0
4	2495.6	0.5			13	63.1	11.0*		
5	133.5	7.5	1.62041	60.3	14	-124.5	10.3	1.58487	53.0
6	43.6	35.0			15	-73.4	0.5		
7	-110.0	35.0	1.51633	64.1	16	$\infty$	9.5	1.56732	42.8
8	-138.1	0.5			17	-106.4			
9	179.0	20.0	1.55690	48.5					

11.0\* = 5.5 + 5.5

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0699	0.0414	-0.0069	-0.0855	-0.8083	86.4	-2.5%
h 或 $\omega\%$	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-0.458	-2.190	-0.265	1.214	-1.479	-0.364	-0.159
70	-0.596	-1.222	-0.079	-0.446	0.367	-0.183	-0.078



编号: 03-02-054

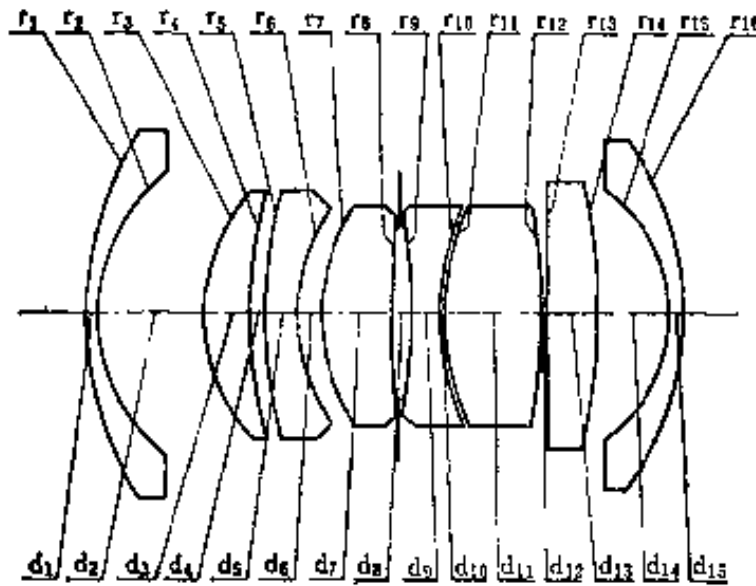
# 八片式广角物镜

E. F. L = 0.835

B. F. L = 0.509

FN<sub>0</sub> = 5.6

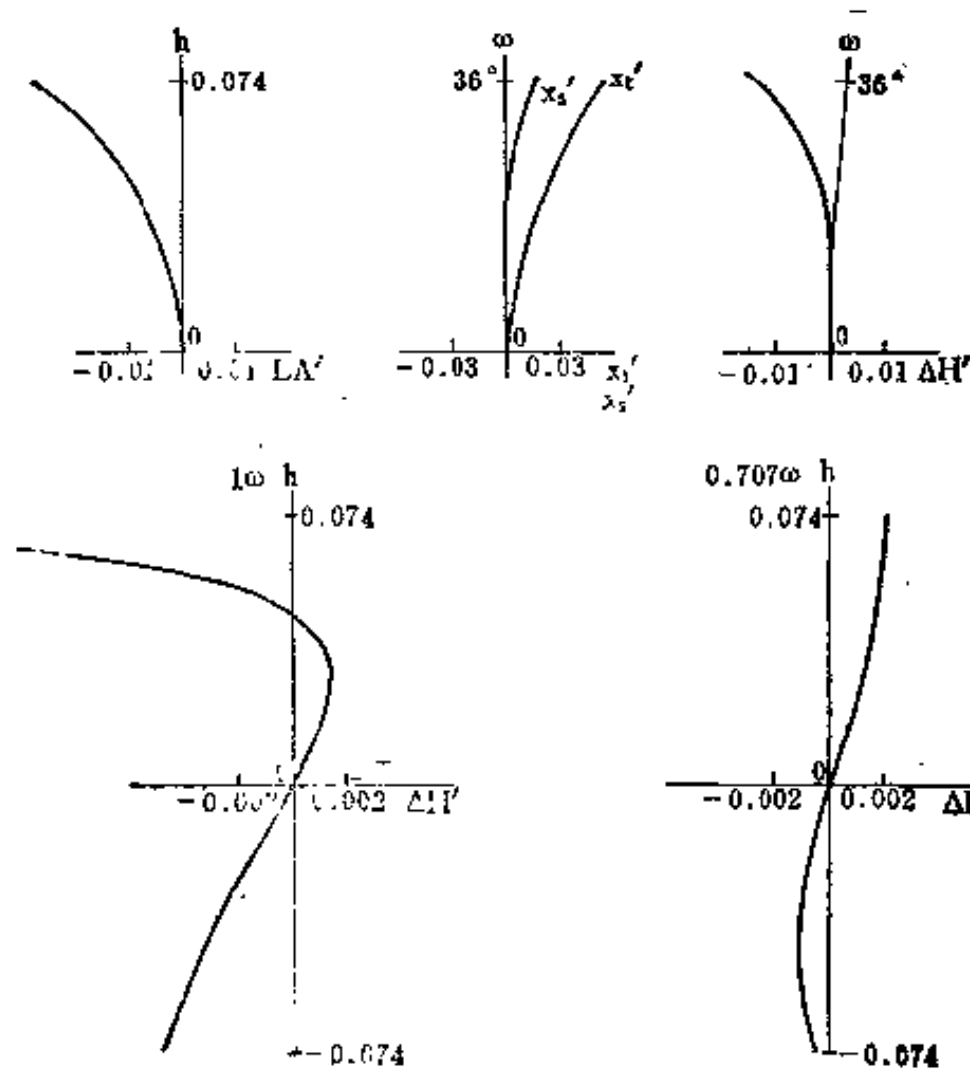
F. A. = ±36°



序号	r	d	n <sub>D</sub>	v <sub>D</sub>	序号	r	d	n <sub>D</sub>	v <sub>D</sub>
1	0.4844	0.0137	1.5165	64.1	9	-1.0050	0.0460	1.7495	35.0
2	0.2502	0.1520			10	0.3702	0.0017		
3	0.2591	0.0620	1.6510	55.8	11	0.3770	0.1370	1.8155	44.4
4	0.6434	0.0210			12	-0.9263	0.0060		
5	0.8338	0.0446	1.6056	43.9	13	-28.0256	0.0698	1.6910	54.8
6	0.2589	0.0325			14	-0.8150	0.1006		
7	0.2651	0.1000	1.5596	61.2	15	-0.2110	0.0190	1.5150	54.3
8	1.7450	0.0203*			16	-0.4302			

0.0203\* = 0.0100 + 0.0103

	ΣS <sub>1</sub>	ΣS <sub>2</sub>	ΣS <sub>3</sub>	ΣS <sub>4</sub>	ΣS <sub>5</sub>	HI	QP(1ω)
	-0.00035	0.00005	0.00033	-0.00029	-0.00129	0.61	-2.9%
h 或 ω%	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>T1</sub>	K <sub>T0.7</sub>
100	-0.023	-0.018	0.055	0.017	0.038	-0.2520	-0.0020
70	-0.012	-0.004	0.029	0.004	0.025	0.0007	0.0003



编号: 03-02-055

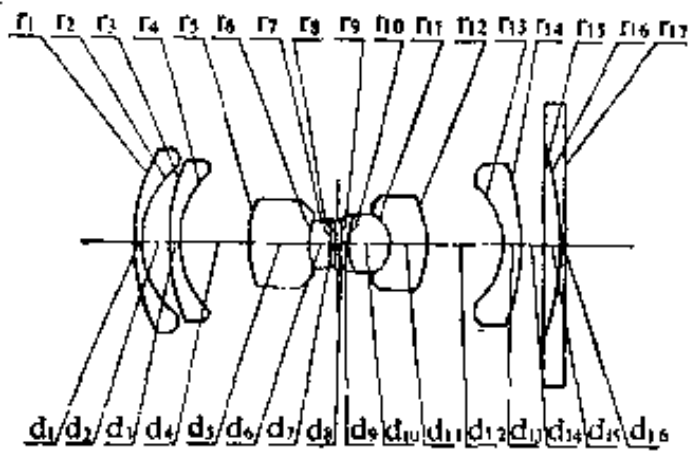
# 广 角 物 镜

E. F. L = 1

B. F. L = 0.2896

FNo. = 5.6

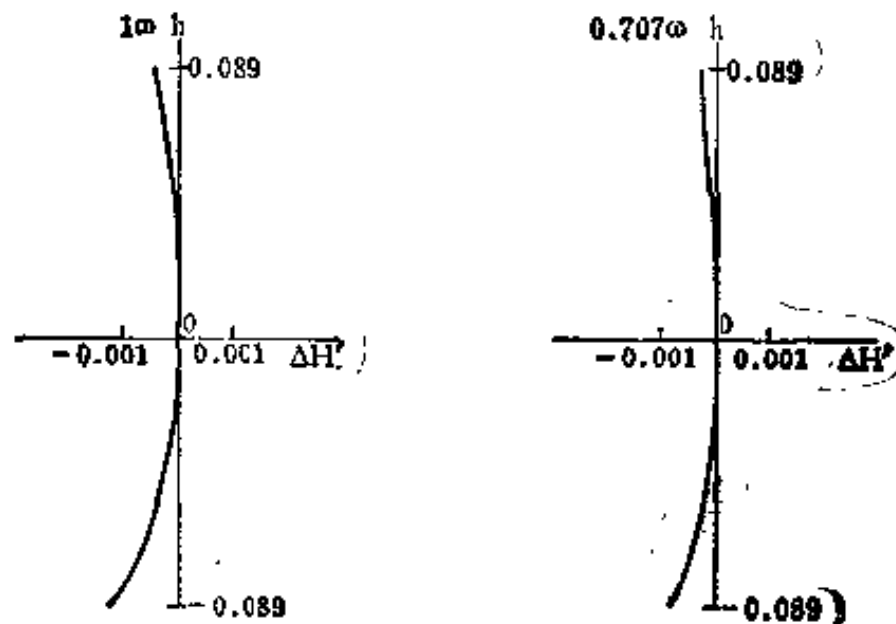
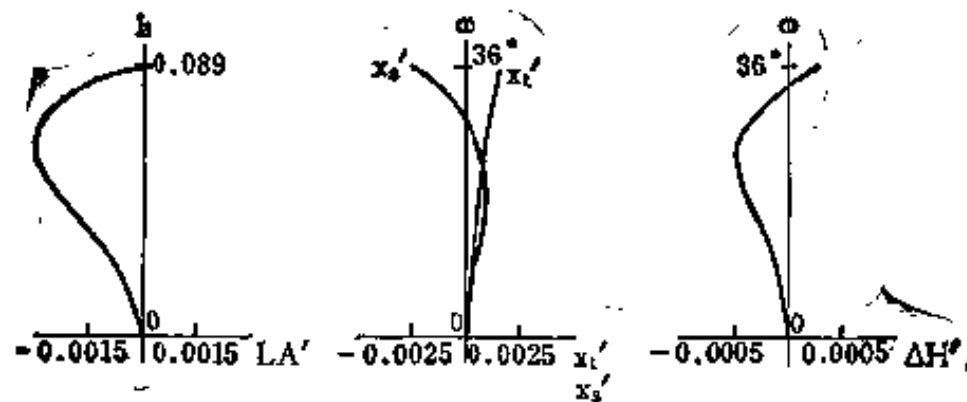
F. A. =  $\pm 36^\circ$



序号	$r$	$d$	$n_d$	$v_d$	序号	$r$	$d$	$n_d$	$v_d$
1	1.0092	0.0384	1.50048	65.9	10	0.2865	0.2137	1.62230	53.1
2	0.4817	0.1362			11	-0.2465	0.1753	1.71736	29.5
3	0.9586	0.0411	1.48749	70.0	12	-0.5803	0.3772		
4	0.4897	0.3553			13	-0.3901	0.0926	1.64850	53.0
5	0.5419	0.2830	1.71300	53.9	14	-1.1741	0.1260		
6	0.2447	0.1131	1.60729	59.9	15	$\infty$	0.0876	1.50013	63.2
7	1.3703	0.0192	1.60717	40.2	16	-1.4786	0.0164	1.50048	65.9
8	-1.8791	0.0345*			17	$\infty$			
9	-2.8252	0.0274	1.57250	57.5					

$$0.0345^* = 0.0170 + 0.0175$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00016	-0.00008	-0.00002	0.00008	-0.00037	0.73	0.03%
$h$ 或 $\omega\%$	$LA'$	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{11}$	$K'_{T0.7}$
100	0.00027	0.00024	0.00168	-0.00256	0.00424	-0.00079	-0.00035
70	-0.00292	-0.00053	0.00118	0.00074	0.00044	-0.00059	-0.00033



编号: 03-02-056

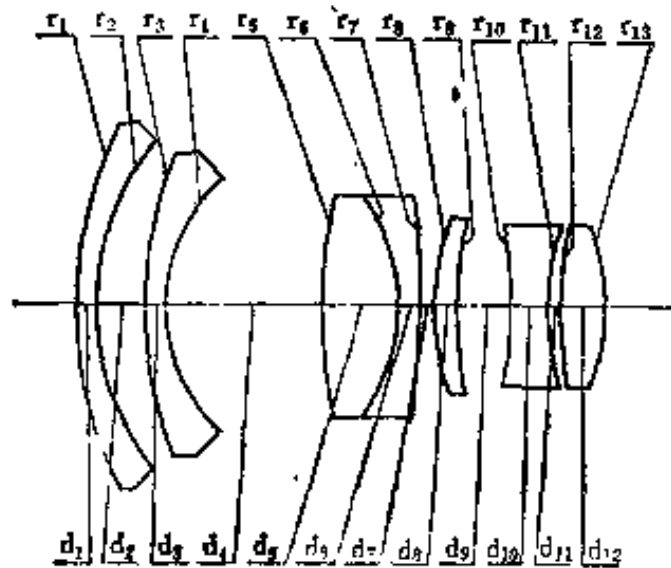
# 摄影或电影摄影用的广角物镜

E. F. L = 100

B. F. L = 129.2

FNo. = 4

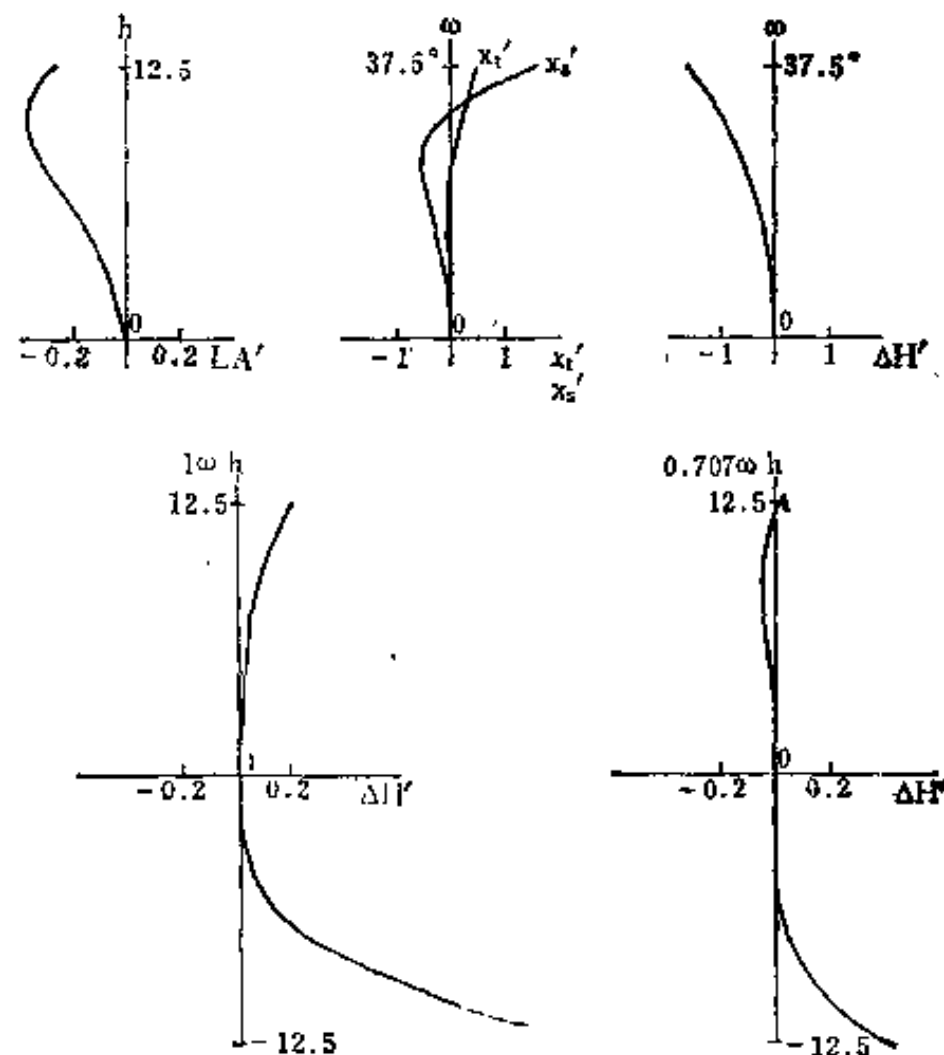
F. A. =  $\pm 37.5^\circ$



序号	r	d	$n_e$	$v_e$	序号	r	d	$n_e$	$v_e$
1	101.29	4.91	1.51871	63.96	8	64.24	6.31	1.62287	60.06
2	65.35	12.28			9	137.14	12.28		
3	100.72	4.91	1.51871	63.96	10	-110.72	10.17	1.70444	29.81
4	41.50	39.29			11	66.68	2.81*		
5	131.77	19.30	1.62508	52.93	12	175.52	10.53	1.68081	55.31
6	-46.87	5.26	1.50228	65.92	13	-56.17			
7	-319.47	3.51							

2.81\* = 1.40 + 1.41

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0290	-0.0102	-0.0016	-0.0634	-0.3720	76.02	-2.2%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-0.265	-1.666	0.430	1.615	-1.185	0.8796	0.2595
70	-0.343	-0.678	0.078	-0.498	0.576	0.2367	0.0145



编号: 03-02-057

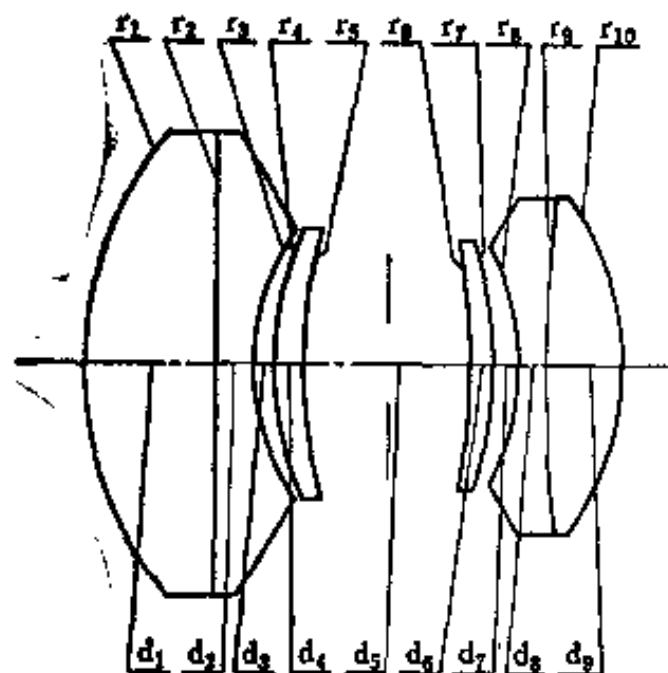
## 改进的对称式广角物镜

E. F. L = 100.24

B. F. L = 83.88

FN<sub>0</sub> = 5.6

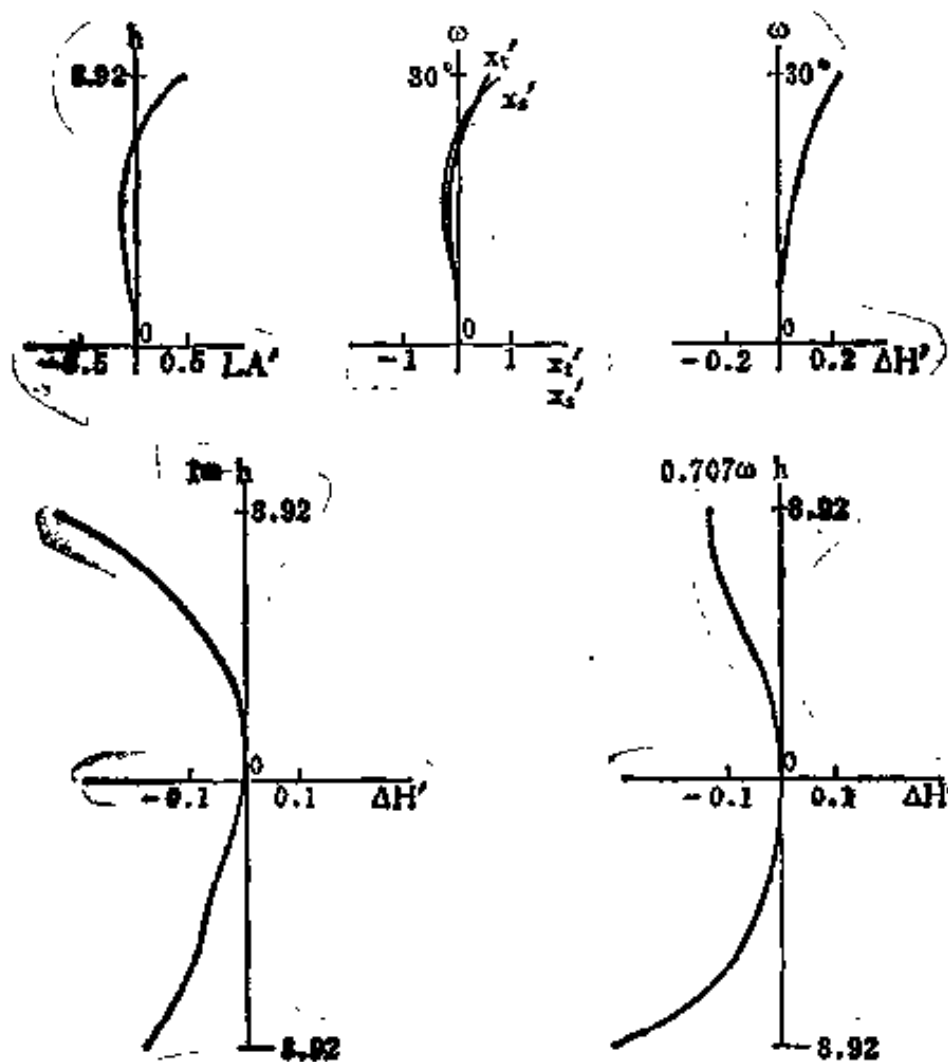
F. A. = ± 30°



序号	r	d	n <sub>e</sub>	v <sub>e</sub>	序号	r	d	n <sub>e</sub>	v <sub>e</sub>
1	22.79	8.08	1.6055	60.5	6	-42.35	1.37	1.5201	65.0
2	-774.00	2.40	1.5543	49.3	7	-25.83	1.63		
3	14.65	1.20			8	-14.93	1.66	1.5543	49.3
4	20.20	1.89	1.5201	65.0	9	142.70	4.77	1.6055	60.5
5	31.94	10.10*			10	-17.95			

10.10\* = 5.30 + 4.80

	ΣS <sub>1</sub>	ΣS <sub>2</sub>	ΣS <sub>3</sub>	ΣS <sub>4</sub>	ΣS <sub>5</sub>	HI	QP(1ω)
	-0.00921	-0.01525	0.00386	-0.01777	0.04301	57.9	0.4%
h 或 ω%	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>T1</sub> '	K <sub>I0.7</sub> '
100	0.473	0.239	0.699	0.788	-0.089	-0.269	-0.118
70	-0.051	0.095	-0.042	-0.129	-0.087	-0.221	-0.098



编号: 03-02-058

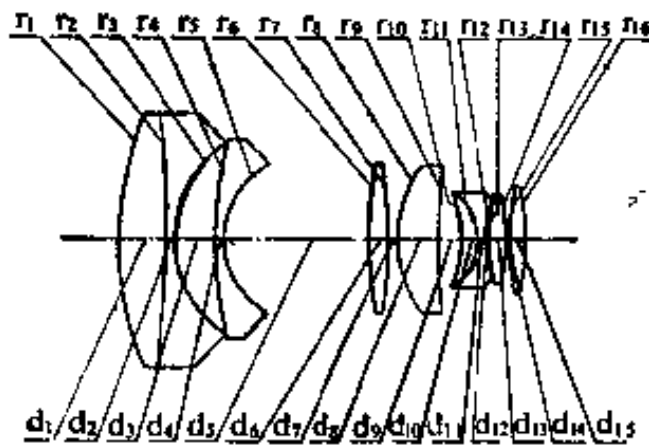
# 反 远 距 型 物 镜

E. F. L = 1

B. F. L = 1.484

FNo. = 1.75

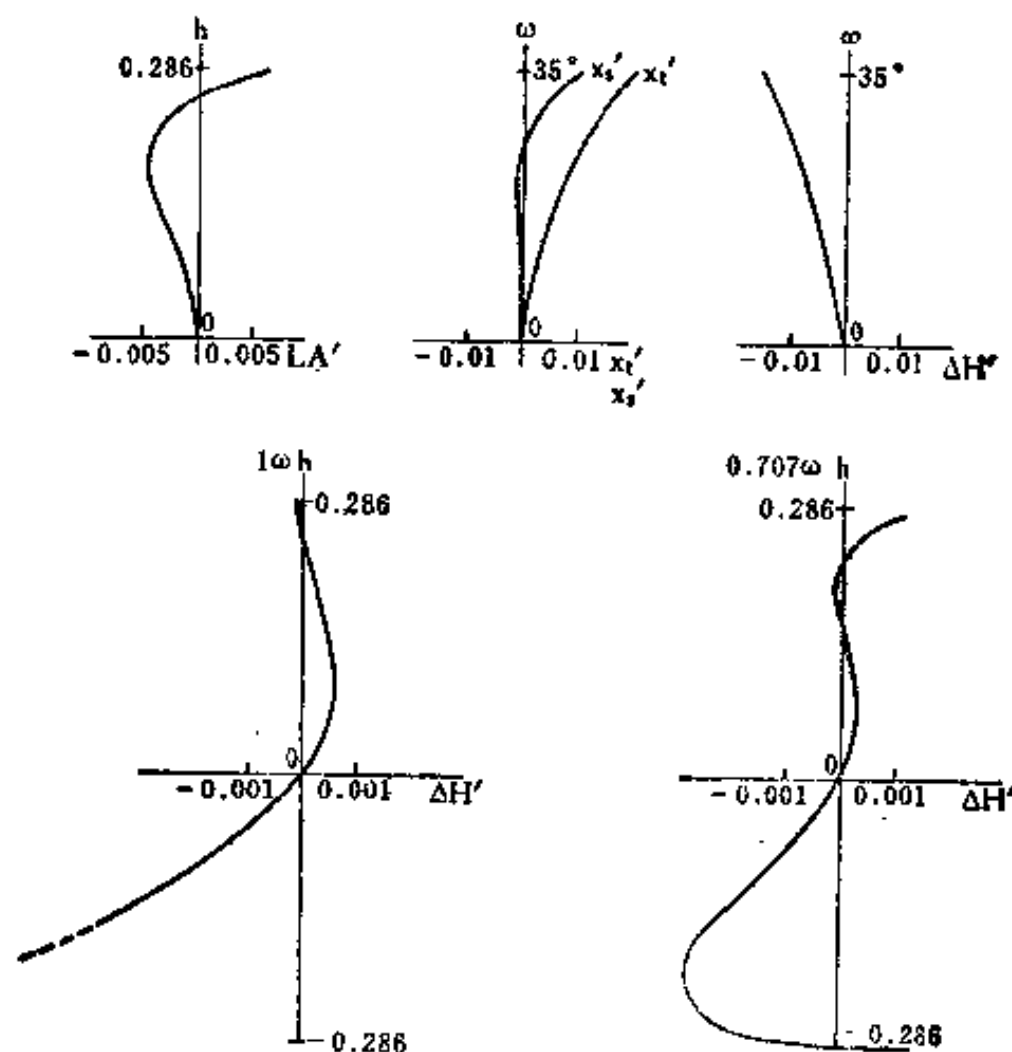
F. A. =  $\pm 35^\circ$



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	8.962	0.605	1.74400	44.71	9	7.333	0.294		
2	-13.870	0.099	1.50759	61.16	10	-1.310	0.195	1.72000	50.31
3	1.400	0.488			11	-0.675	0.106	1.64793	33.80
4	4.460	0.099	1.66100	58.60	12	1.421	0.047*		
5	1.282	1.790			13	2.690	0.216	1.69100	54.80
6	4.935	0.251	1.60545	38.03	14	-1.635	0.040		
7	-4.935	0.096			15	3.298	0.176	1.69100	54.80
8	1.527	0.493	1.65100	58.60	16	-3.298			

0.047\* = 0.023 + 0.024

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00319	0.00115	0.00130	-0.00277	-0.01431	0.7	-2.2%
h 或 $\omega\%$	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{F1}$	$K'_{T0.7}$
100	0.00615	-0.0157	0.0197	0.0112	0.0085	-0.0032	-0.0022
70	-0.00450	-0.0039	0.0110	-0.0039	0.0119	0.0013	-0.0015



编号: 03-02-059

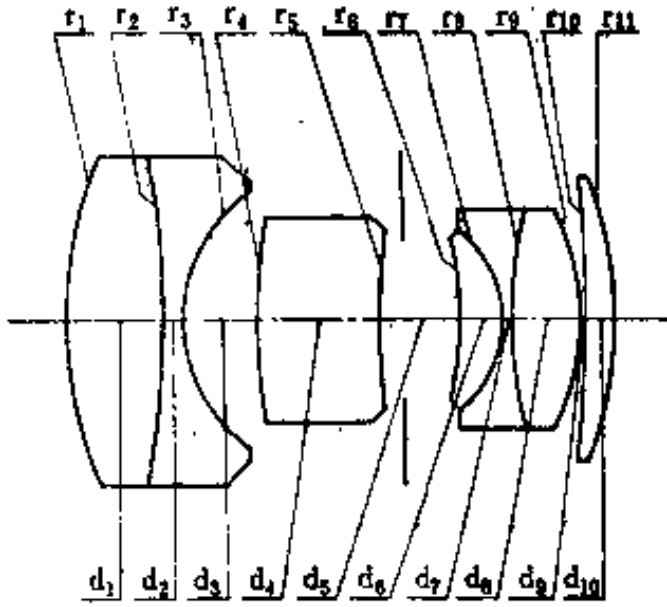
# 广角摄影物镜

E.F.L=0.983

B.F.L=1.153

FNo. =4

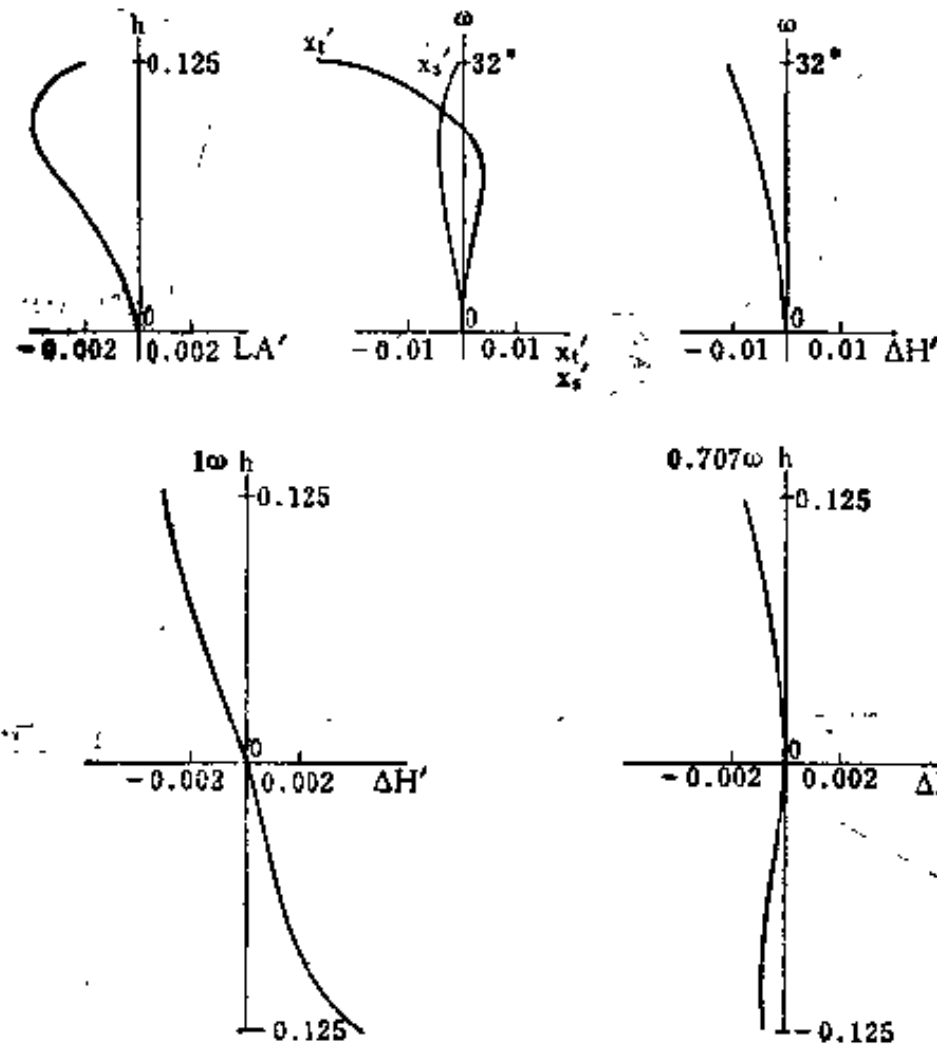
F.A. = ±32°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	0.70887	0.185890	1.62041	60.3	7	-0.21315	0.022740	1.72339	38.0
2	-1.83258	0.037240	1.50137	56.5	8	0.95212	0.123930	1.66672	48.4
3	0.28631	0.133342			9	-0.42835	0.002840		
4	0.95897	0.230230	1.75520	27.5	10	-3.01095	0.061960	1.69067	54.9
5	2.37442	0.150650*			11	-0.68380			
6	-0.53539	0.074470	1.65160	58.4					

0.150650\* = 0.050650 + 0.100000

	ΣS <sub>1</sub>	ΣS <sub>2</sub>	ΣS <sub>3</sub>	ΣS <sub>4</sub>	ΣS <sub>5</sub>	HI	QP(1ω)
	-0.00037	-0.00027	0.00045	-0.00082	-0.00399	0.61	-1.7%
h 或 ω%	LA'	ΔH'	x <sub>t</sub> '	x <sub>s</sub> '	x <sub>t</sub> ' - x <sub>s</sub> '	K <sub>F1</sub> '	K <sub>F0.7</sub> '
100	-0.00189	-0.0106	-0.0270	-0.0007	-0.0263	0.00064	-0.00009
70	-0.00378	-0.0057	0.0035	-0.0046	0.0081	-0.00109	-0.00093



编号: 03+02-060

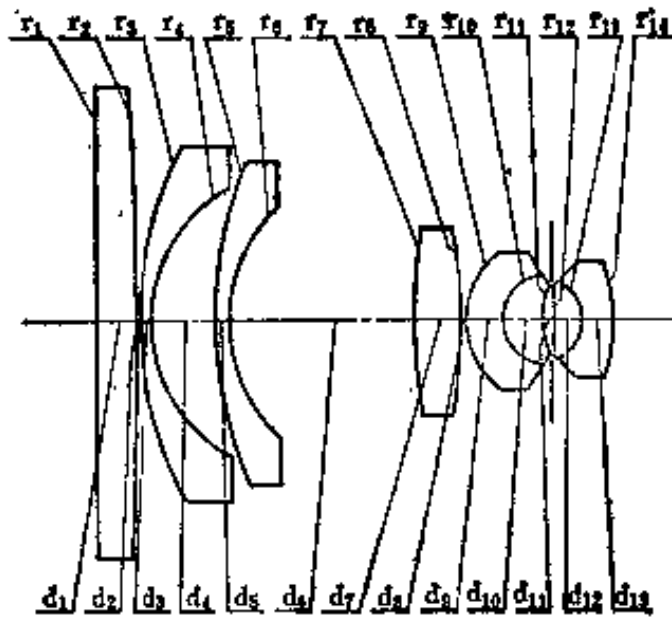
## 两组元超广角摄影物镜

E. F. L = 27.88

B. F. L = 32.09

FNo. = 3.5

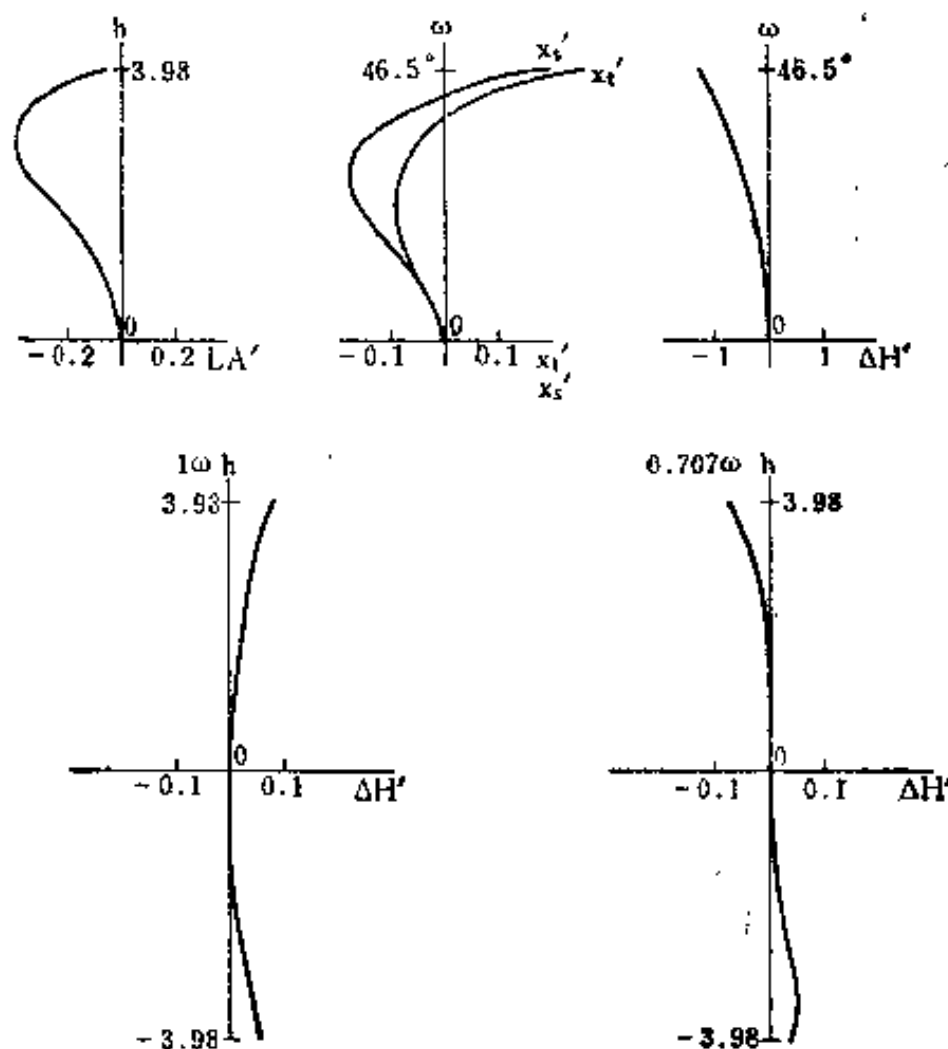
F. A. =  $\pm 46.5^\circ$



序号	r	d	n <sub>D</sub>	v <sub>D</sub>	序号	r	d	n <sub>D</sub>	v <sub>D</sub>
1	$\infty$	8.000	1.6126	58.3	8	-89.740	0.200		
2	-743.000	0.680			9	17.258	8.304	1.728	28.3
3	74.300	2.700	1.6126	58.3	10	8.954	8.100	1.6123	44.1
4	31.920	13.500			11	18.197	2.120*		
5	94.620	2.700	1.6126	58.3	12	115.880	5.916	1.6123	44.1
6	32.430	38.650			13	-8.790	6.600	1.7280	28.3
7	135.210	9.750	1.6126	58.3	14	-37.150			

2.120\* = 1.060 + 1.060

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_6$	HI	QP(1 $\omega$ )
	-0.0482	0.0267	-0.0176	-0.0155	-0.3081	29.3	-4.3%
h 或 $\omega\%$	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{T1}$	$K'_{T0.7}$
100	-0.0623	-1.2643	0.2497	0.2269	0.0228	0.0616	0.0335
70	-0.3940	-0.5913	-0.0718	-0.1669	0.0951	-0.0137	0.0089

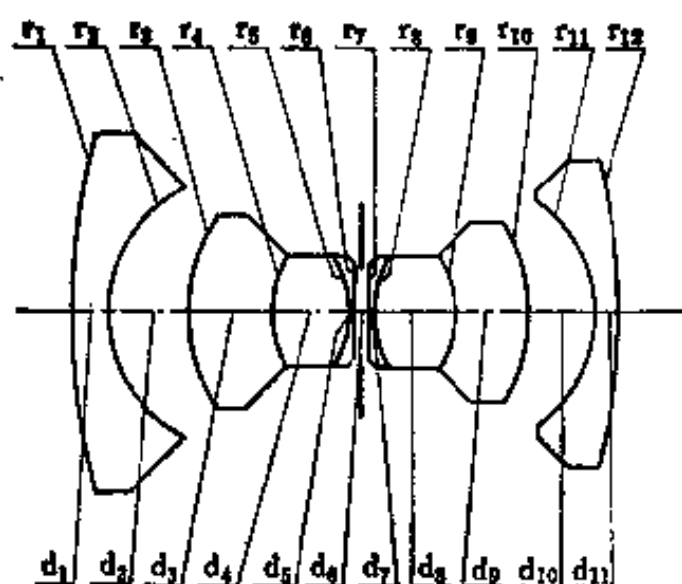




编号: 03-02-062

# 小型的超广角照相机物镜

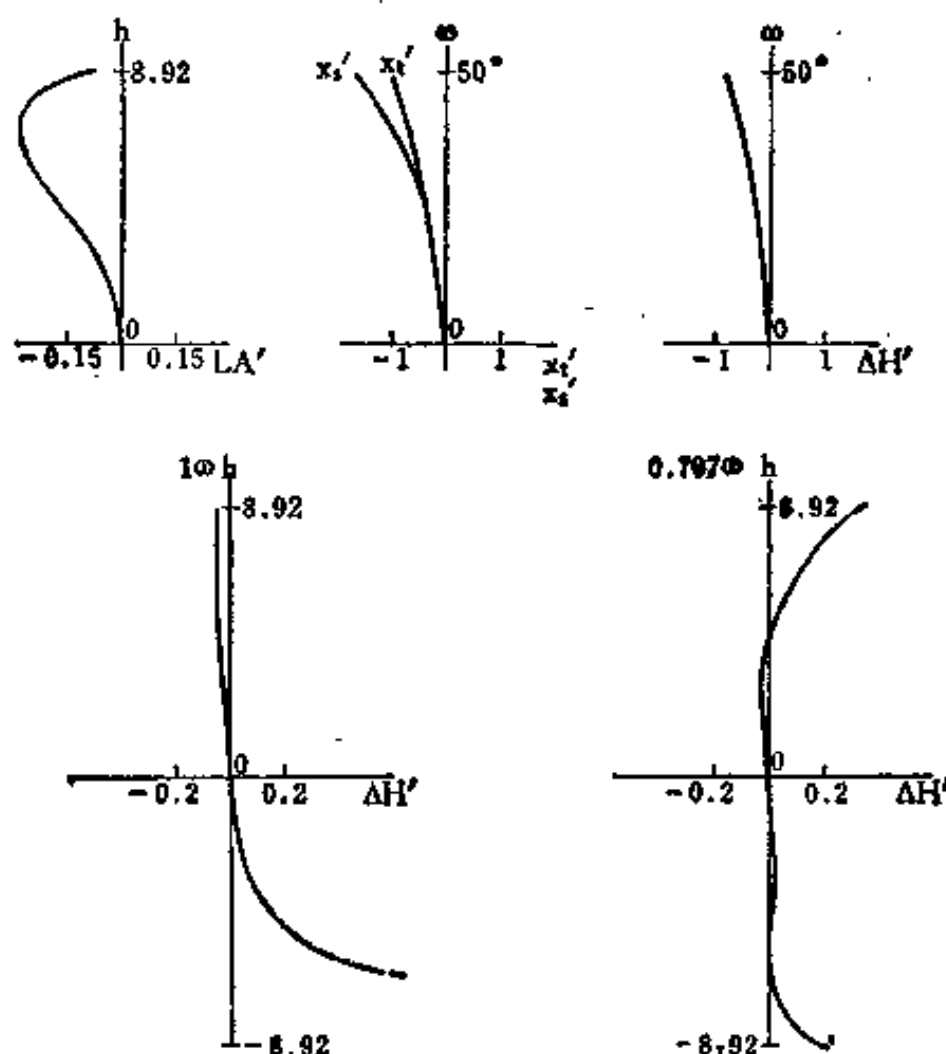
E. F. L = 100.17    B. F. L = 68.14    FNo. = 5.6    F. A. =  $\pm 50^\circ$



序号	r	d	n <sub>D</sub>	v <sub>d</sub>	序号	r	d	n <sub>D</sub>	v <sub>d</sub>
1	127.95	7.17	1.46450	65.8	7	-1056.86	1.10	1.56470	55.8
2	25.54	14.87			8	23.95	14.45	1.61375	56.3
3	35.13	15.42	1.71700	47.9	9	-16.46	13.40	1.70181	41.1
4	20.56	13.83	1.81405	55.1	10	-34.95	12.25		
5	-21.67	1.10	1.56138	45.3	11	-25.94	4.26	1.52035	63.6
6	361.41	2.95*			12	-124.29			

2.95\* = 1.48 + 1.47

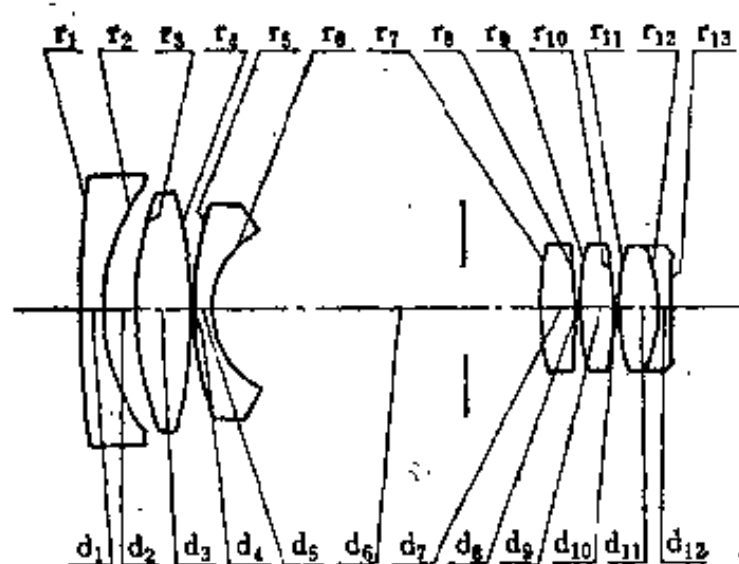
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP (1%)
	-0.0119	-0.0043	-0.0030	0.0003	-0.1495	119.4	-0.68%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_4$	$x'_1 - x'_4$	$K'_{F1}$	$K'_{F0.7}$
100	-0.0917	-0.8174	-1.0324	-1.7721	0.7397	1.3542	0.2222
70	-0.2773	-0.3949	-0.5751	-0.6287	0.0535	0.2874	0.0381



编号: 03-02-063

# 反 远 距 型 物 镜

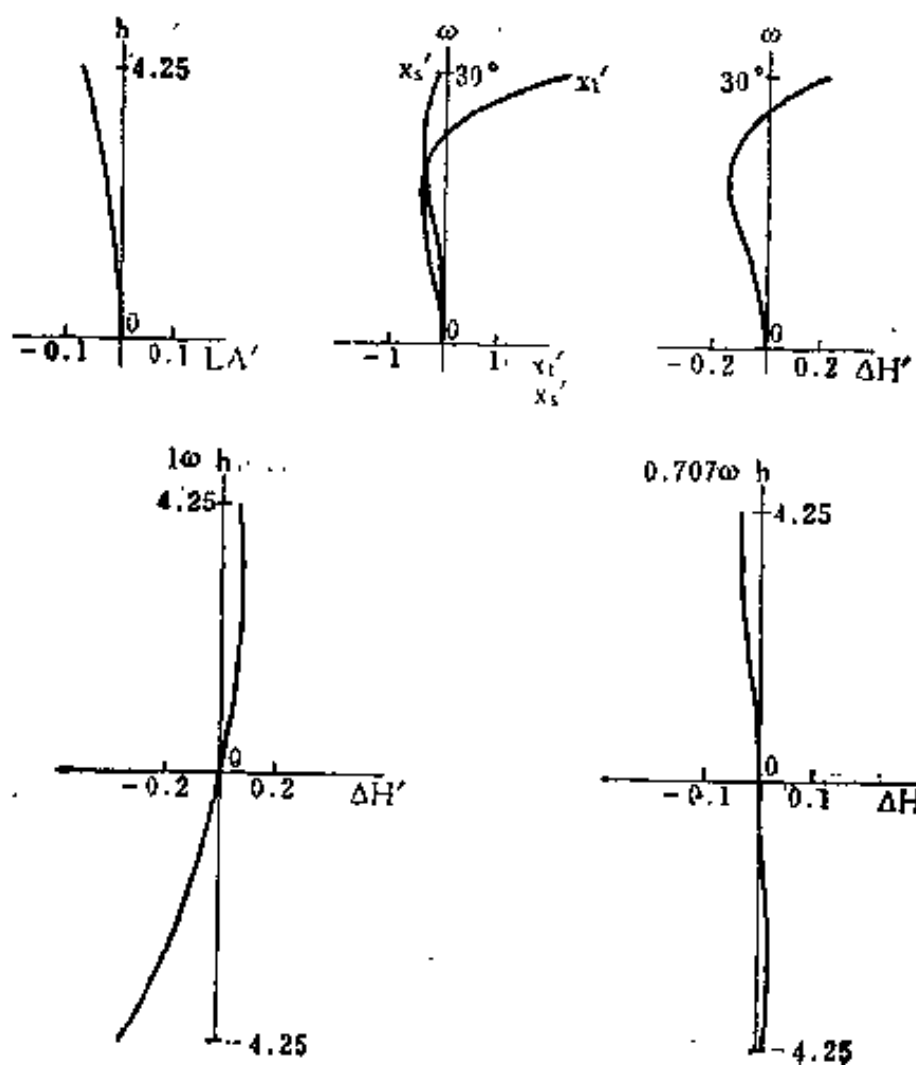
E.F.L=84.03    B.F.L=54.3    FNo.=4\*\*    F.A.=±30°\*\*



序号	r	d	n <sub>D</sub>	v <sub>D</sub>	序号	r	d	n <sub>D</sub>	v <sub>D</sub>
1	506.3	8.31	1.572	57.4	8	-205.7	1.63		
2	68.3	13.61			9	105.3	13.78	1.517	64.5
3	134.7	20.17	1.745	46.4	10	-105.3	1.66		
4	-172.0	1.36			11	81.8	13.90	1.511	63.5
5	142.3	6.24	1.572	57.4	12	-46.5	4.23	1.751	27.8
6	33.9	122.00*			13	382.5			
7	105.8	13.90	1.517	64.5					

122.00\* = 100.00 + 22.00

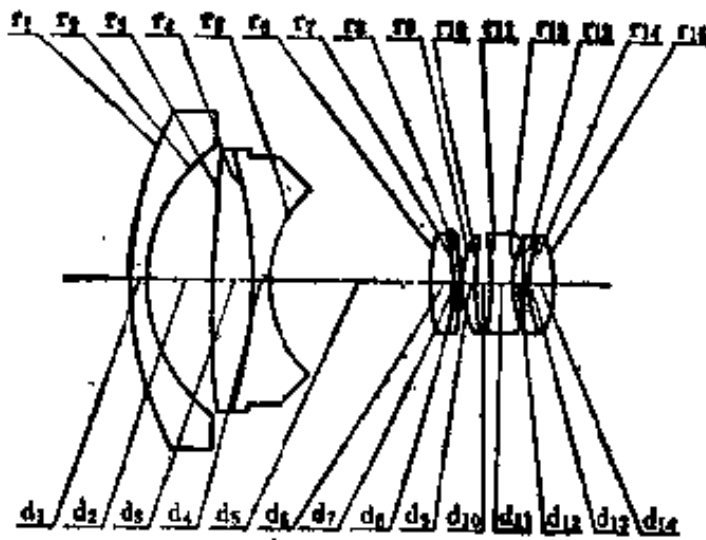
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP (1%)
	-0.0029	0.0052	-0.0118	-0.0238	-0.0886	19.6	1.1%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>T1</sub>	K <sub>T2.7</sub>
100	-0.0848	0.2162	2.3262	-0.0818	2.4080	-0.1450	-0.0712
70	-0.0448	-0.1566	-0.3732	-0.3439	-0.0293	-0.0096	-0.0059



编号: 03-02-065

# 广 角 物 镜

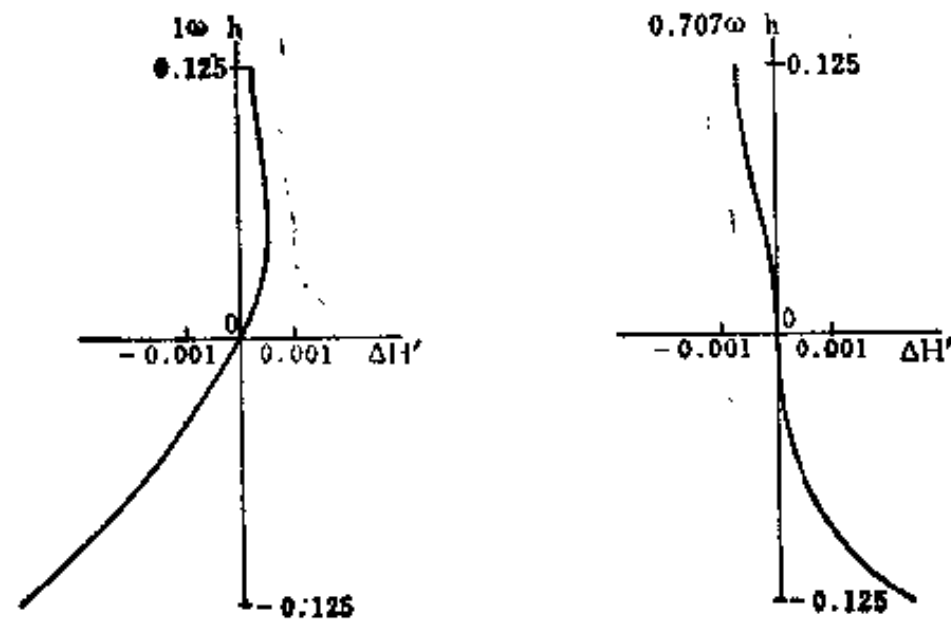
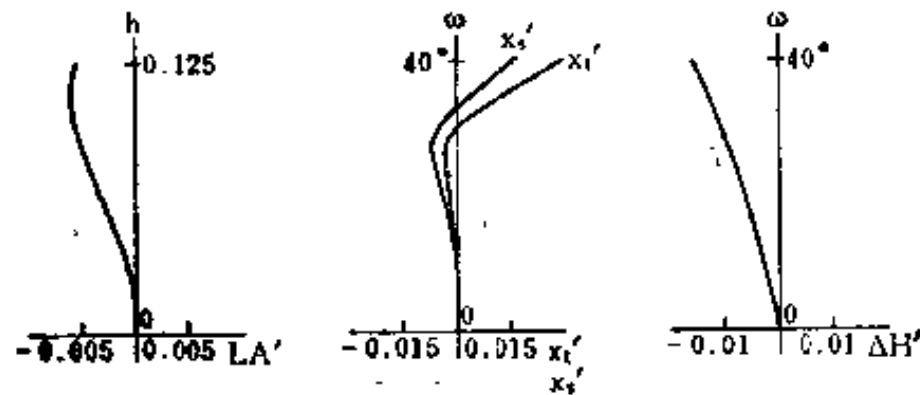
E.F.L=1 B.F.L=1.438 FNo.=4\*\* F.A.=±40°



序号	r	d	n	v	序号	r	d	n	v
1	2.6099	0.1164	1.5014	56.5	9	0.6728	0.1048	1.5673	42.8
2	1.1903	0.4384			10	2.1657	0.0854		
3	8.9468	0.2716	1.8052	25.5	11	-3.1116	0.1552	1.8052	25.5
4	-3.0154	0.1164	1.4463	67.3	12	0.6464	0.0660*		
5	0.8543	1.1251			13	6.6224	0.0310	1.6200	36.3
6	1.3277	0.1552	1.6385	55.5	14	0.7162	0.1785	1.7363	32.1
7	-0.9566	0.0388	1.7408	28.1	15	-0.8590			
8	-3.4224	0.0039							

0.0660\* = 0.0330 + 0.0330

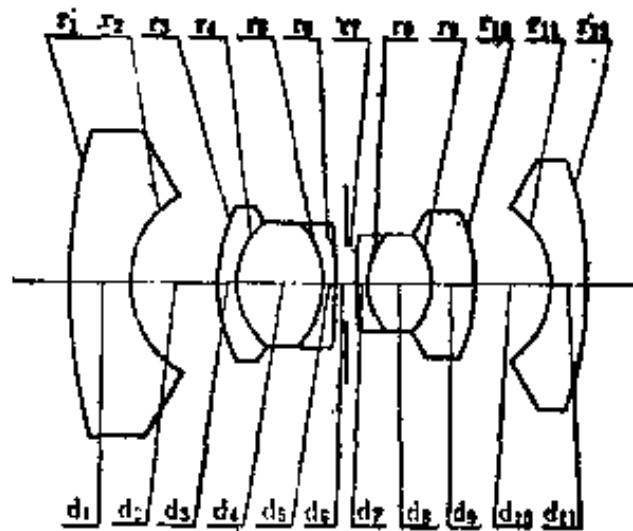
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP (1%)
	-0.00040	0.00022	-0.00012	-0.00069	-0.00556	0.84	-1.9%
h 或 $\omega$ %	LA'	$\Delta H'$	$x_1'$	$x_2'$	$x_1' - x_2'$	$K_{T1}$	$K_{T0.7}$
100	-0.00543	-0.0165	0.0309	0.0170	0.0139	-0.0019	-0.0011
70	-0.00488	-0.0099	-0.0039	-0.0070	0.0031	0.0008	0.0001



编号: 03-02-066

# 四组元超广角照相机物镜

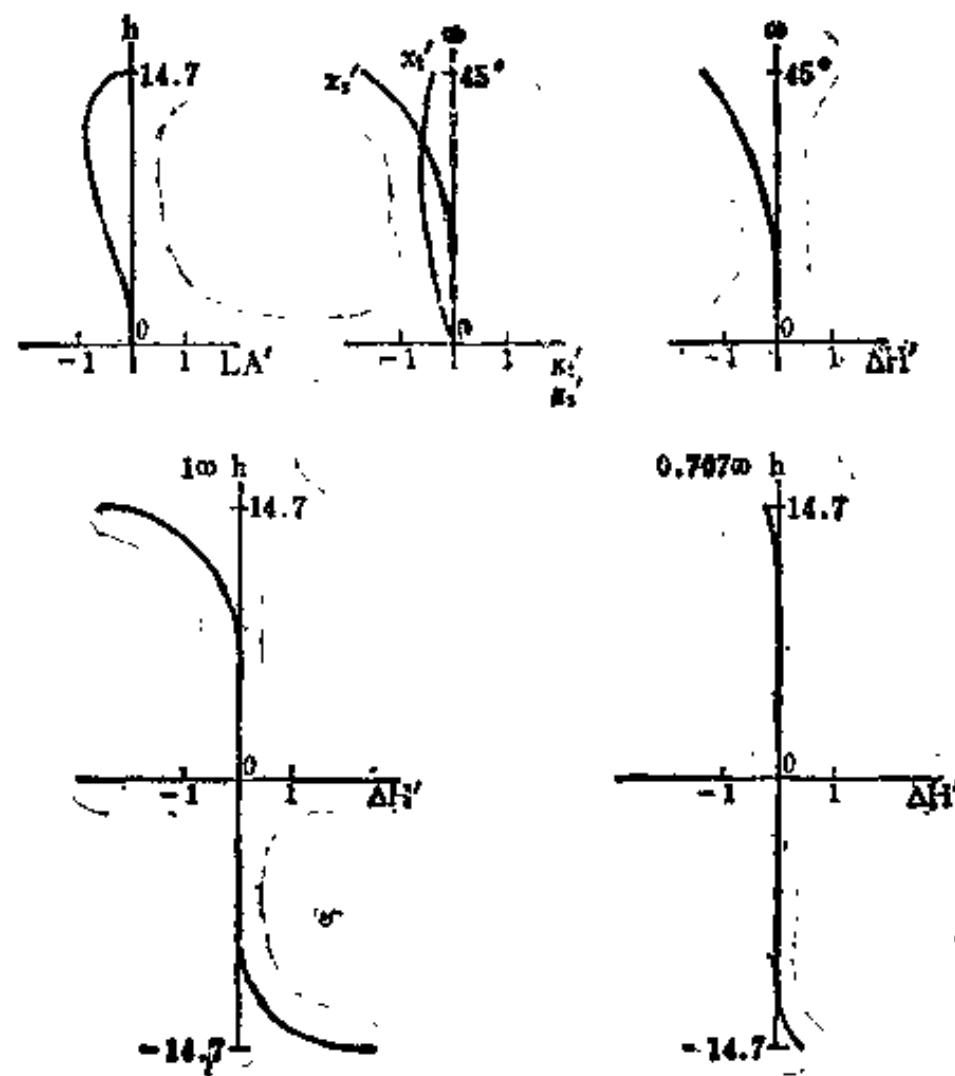
E.F.L=100 B.F.L=39.01 FNo. =3.4 F.A. = ±45°



序号	r	d	n <sub>d</sub>	v <sub>d</sub>	序号	r	d	n <sub>d</sub>	v <sub>d</sub>
1	234.94	24.53	1.52249	59.64	7	318.75	4.62	1.56732	42.82
2	42.02	37.10			8	29.20	26.20	1.62299	58.12
3	61.73	7.25	1.72372	38.09	9	-28.48	18.39	1.71700	47.90
4	34.17	36.50	1.60729	49.25	10	-78.50	31.37		
5	-35.23	4.90	1.56013	47.03	11	-37.98	14.65	1.54072	47.22
6	-270.56	8.27*			12	-165.40			

8.27\* = 4.14 + 4.13

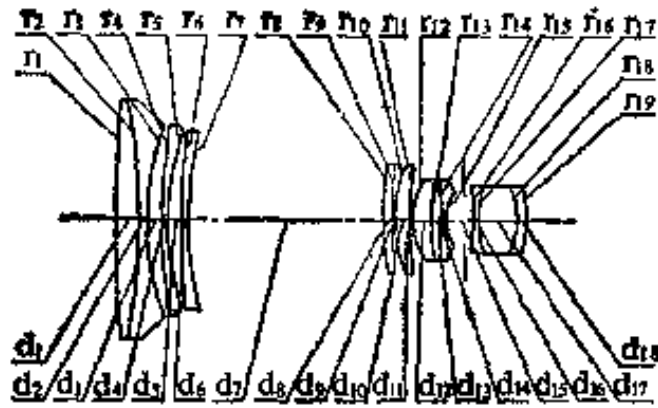
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP (1ω)
	-0.0867	-0.0298	-0.0478	0.0402	-0.3021	100	-1.4%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>3</sub> ' - x <sub>4</sub> '	K <sub>T1</sub>	K <sub>T0.7</sub>
100	-0.241	-1.408	-0.379	-1.747	1.368	-0.023	-0.064
70	-0.771	-0.492	-0.606	-0.357	-0.249	0.113	-0.011



编号: 03-02-067

# 广 角 镜 头

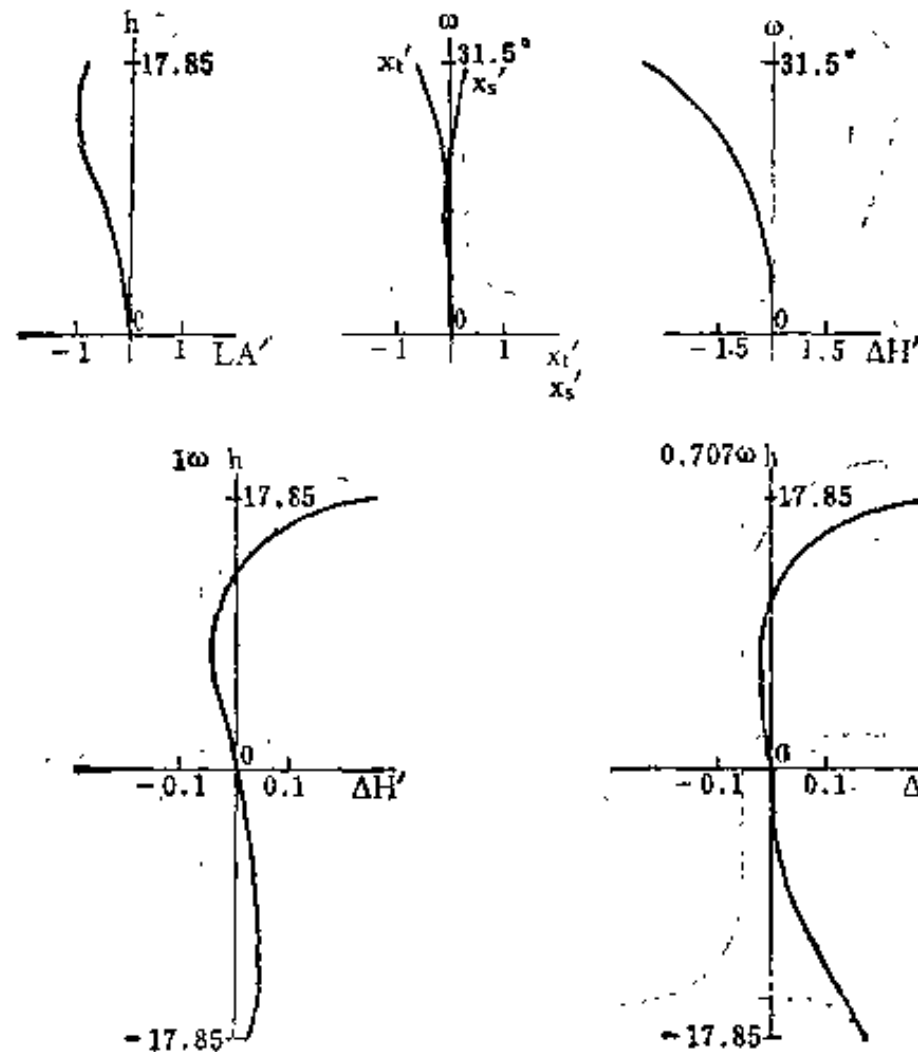
E. F. L=100    B. F. L=103.46    FNo. =2.8\*\*    F. A. =±31.5°



序号	r	d	$n_d$	$v_d$	序号	r	d	$n_d$	$v_d$
1	1322.732	22.65	1.74057	27.7	11	706.768	0.83		
2	-607.735	7.73	1.49892	65.7	12	63.028	18.78	1.67045	47.0
3	278.149	14.09			13	176.796	11.33	1.46398	65.4
4	1735.635	6.91	1.69139	54.6	14	-418.729	3.04	1.68927	33.1
5	278.149	12.43			15	40.718	26.24*		
6	1043.039	6.91	1.69139	54.6	16	-649.171	5.52	1.56091	45.3
7	367.003	193.37			17	101.478	37.57	1.66067	57.4
8	225.746	9.39	1.63900	55.7	18	-55.249	7.46	1.53959	59.7
9	564.365	0.28			19	-123.630			
10	116.022	16.85	1.63900	55.7					

26.24\* = 14.00 + 12.24

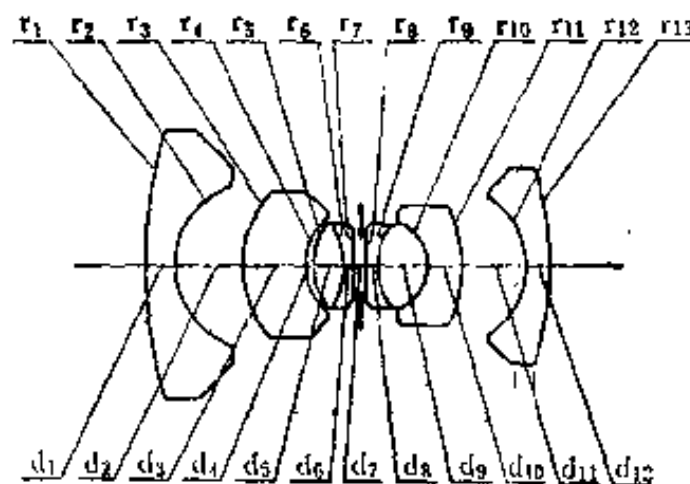
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.1590	-0.0323	-0.0059	-0.0253	-1.0147	61.3	-6%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{f1}$	$K'_{f0.7}$
100	-0.862	-3.726	-0.651	0.347	-0.998	0.151	0.018
70	-0.908	-1.239	-0.212	-0.040	-0.172	0.226	0.054



编号: 03-02-068

# 超 广 角 镜 头

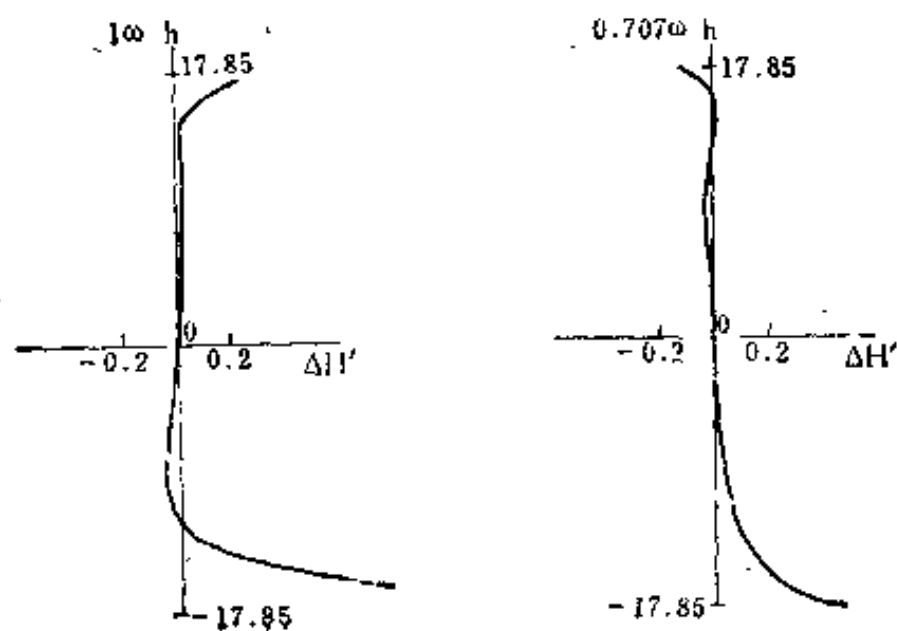
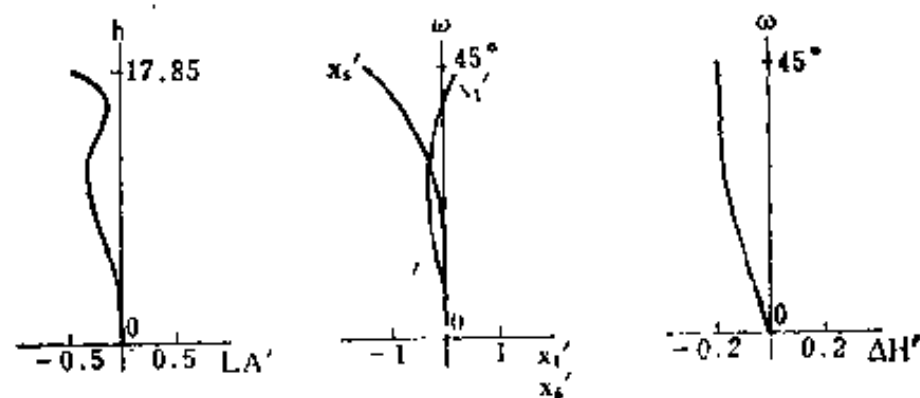
E.F.L=100    B.F.L=28.9    FNo.=2.8    F.A.=±45°



序号	r	d	$n_d$	v	序号	r	d	$n_d$	v
1	270.70	17.00	1.49388	66.1	8	1225.00	8.30	1.52015	63.6
2	47.95	38.55			9	35.85	29.20	1.62041	60.3
3	68.00	36.28	1.72340	38.0	10	-29.79	20.40	1.80802	40.7
4	39.72	2.20			11	-74.73	34.50		
5	43.14	16.90	1.67790	35.5	12	-42.06	14.00	1.50463	64.7
6	-45.35	6.80	1.57501	41.3	13	-176.70			
7	-792.80	6.00*							

6.00\* = 3.00 + 3.00

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0870	-0.0256	-0.0507	0.0342	-0.1984	100	-0.19%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-0.446	-0.189	0.317	-1.500	1.817	1.549	0.048
70	-0.299	-0.188	-0.328	-0.363	0.035	0.176	0.033



编号: 03-02-070

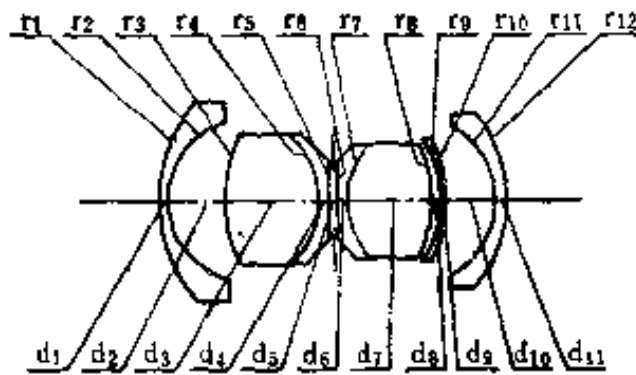
# 广 角 镜 头

E. F. L = 100

B. F. L = 59.4

FNo. = 8.5

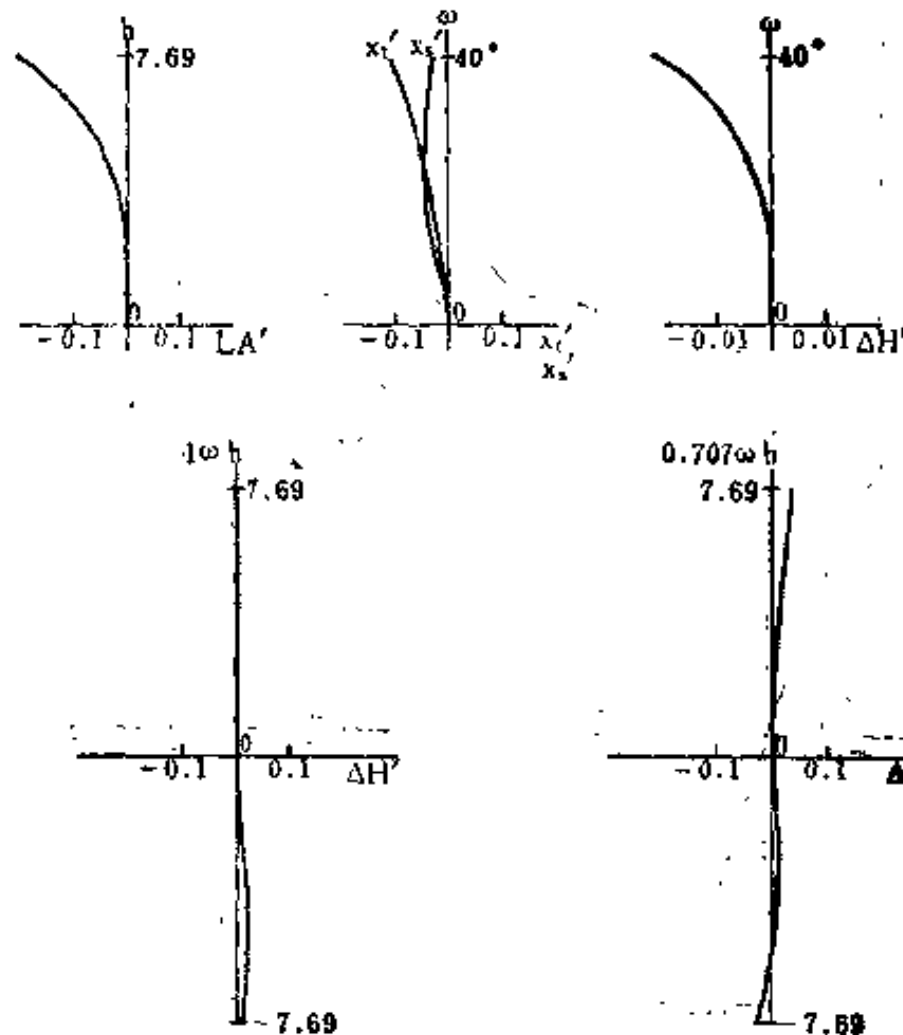
F. A. =  $\pm 40^\circ$



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	55.62	2.85	1.55833	67.8	7	28.34	32.10	1.65160	58.5
2	28.80	22.45			8	-47.55	3.14		
3	67.32	32.67	1.65663	57.0	9	-39.33	1.35	1.58144	40.8
4	-31.05	2.48	1.53256	46.0	10	-59.53	18.10		
5	212.20	3.80*			11	-28.78	3.80	1.66672	48.4
6	-485.70	2.76	1.54072	47.2	12	-49.80			

3.80\* = 1.90 + 1.90

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00042	0.00113	-0.00235	0.00248	-0.00178	83.9	-0.02%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	-0.210	-0.0222	-0.110	-0.032	-0.078	0.00251	0.00400
70	-0.056	-0.0066	-0.062	-0.039	-0.023	0.00844	0.00573



编号: 03-02-071

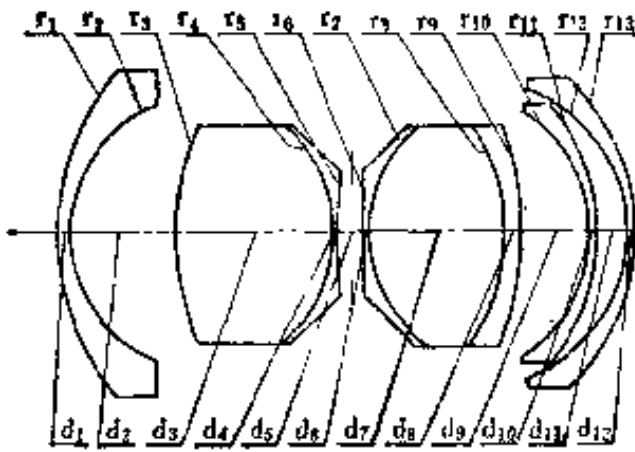
# 广 角 镜 头

E. F. L = 99.9

B. F. L = 57.9

FNo. = 6.5

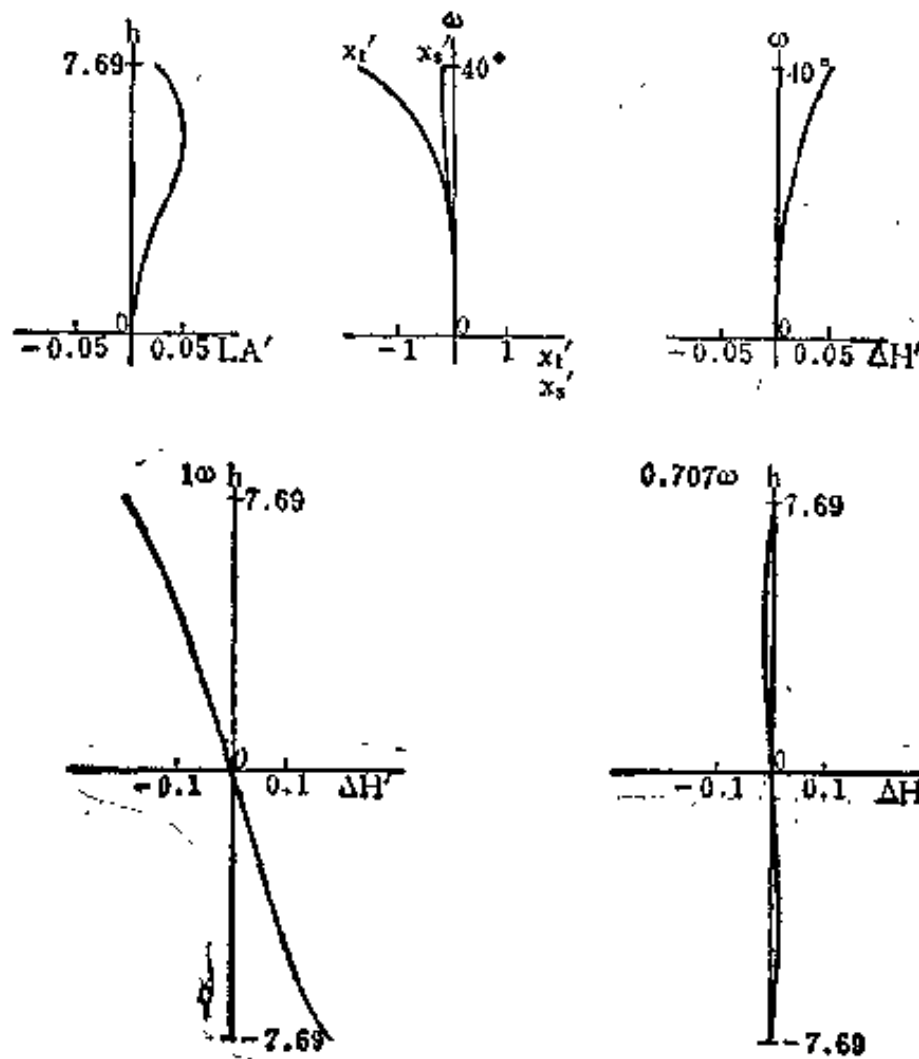
F. A. =  $\pm 40^\circ$



序号	r	d	$n_d$	v	序号	r	d	$n_d$	v
1	52.75	2.85	1.55823	67.8	8	-44.00	3.60	1.58100	46.0
2	28.80	22.45			9	-71.26	15.22		
3	69.00	32.67	1.65663	57.0	10	-30.80	1.50	1.53172	48.9
4	-30.15	1.00	1.53256	46.0	11	-44.00	6.00		
5	212.20	5.49*			12	-31.39	1.50	1.53172	48.9
6	-488.85	1.00	1.54125	47.6	13	-44.84			
7	28.34	32.10	1.65160	58.5					

$$5.490^* = 2.745 + 2.745$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	0.00186	0.00065	-0.00091	0.00087	0.00770	83.8	0.05%
h 或 $\omega$ %	LA'	$\Delta H'$	$x_1$	$x_2$	$x_1' - x_2'$	$K_{f1}$	$K_{f0.7}$
100	0.0197	0.0479	-1.842	-0.256	-1.586	-0.0155	-0.0089
70	0.0434	0.0191	-0.374	-0.108	-0.266	-0.0009	-0.0001





编号: 03-02-072

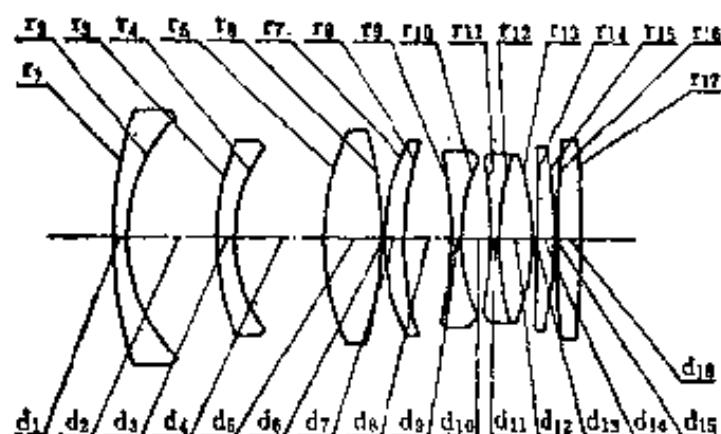
# 大孔径广角摄影物镜

E.F.L=1

B.F.L=1.0569

FNo. =1.8

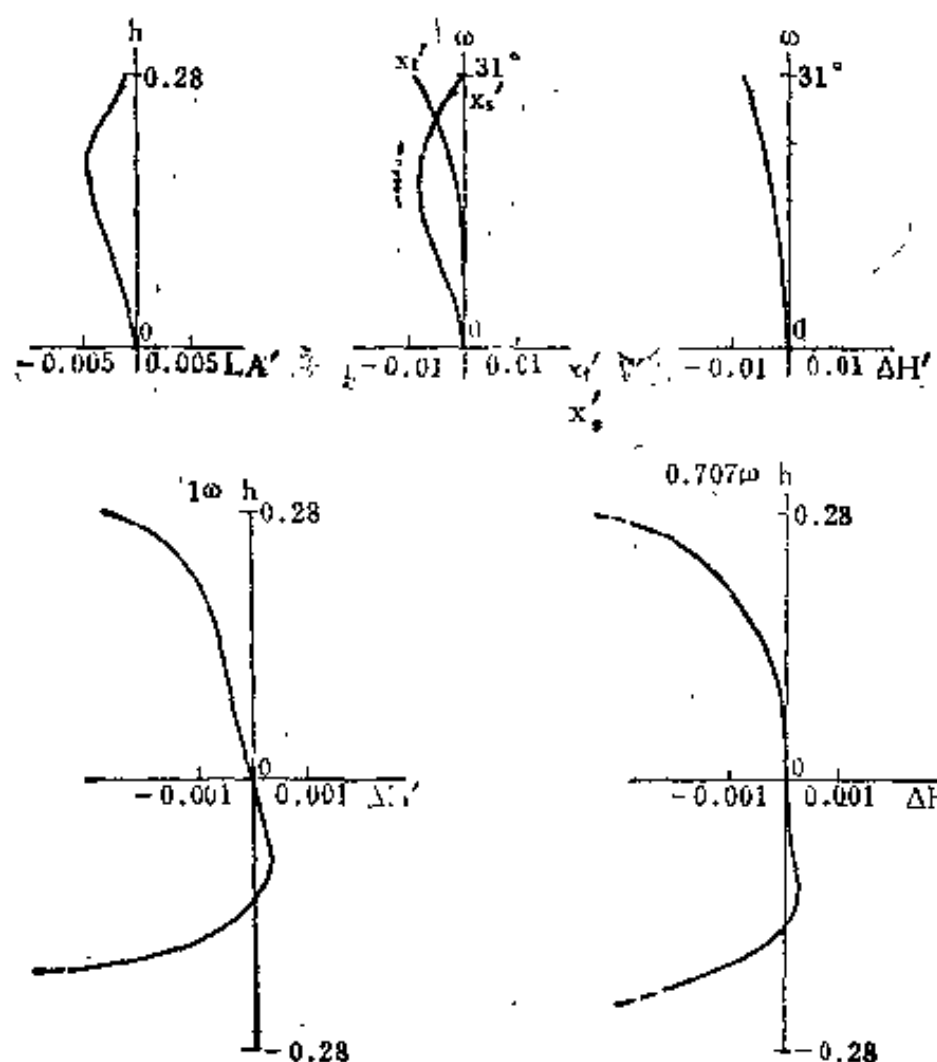
F.A. = ±31°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	1.4993	0.0688	1.60311	60.68	10	0.8117	0.1128		
2	0.6827	0.3719			11	-1.7678	0.0385	1.75520	27.53
3	0.8333	0.0825	1.62041	60.29	12	1.5595	0.1430	1.62041	60.29
4	0.6302	0.3698			13	-0.8543	0.0028		
5	1.0845	0.2475	1.69100	54.80	14	14.8653	0.0990	1.62041	60.29
6	-1.5771	0.0028			15	-1.4338	0.0028		
7	0.8912	0.0963	1.62041	60.29	16	5.1300	0.0963	1.62041	60.29
8	1.2808	0.1870*			17	-4.3172			
9	-1.3721	0.0413	1.58144	40.80					

0.1870\* = 0.0900 + 0.0970

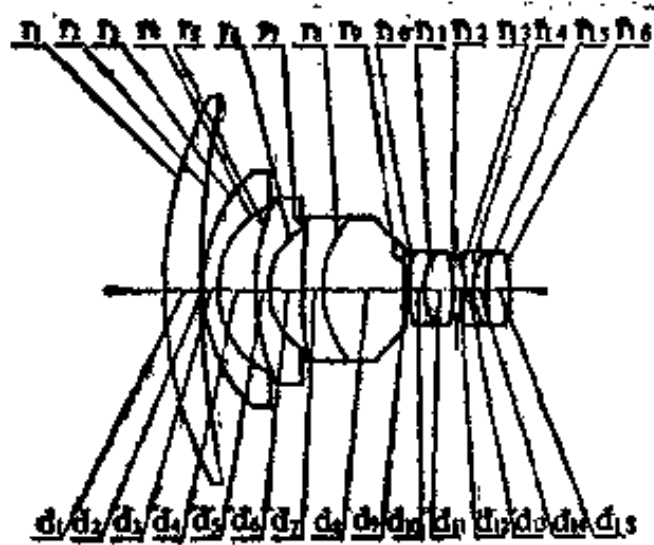
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1ω)
	-0.00294	0.00051	0.00126	-0.00474	-0.00636	0.6	-1.3%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>11</sub>	K <sub>T0.7</sub>
100	-0.00116	-0.00795	-0.00885	-0.00044	-0.00841	-0.0136	-0.0021
70	-0.00453	-0.00406	-0.00192	-0.00780	0.00587	-0.0083	-0.0069



编号: 03-02-074

# 广 角 镜 头

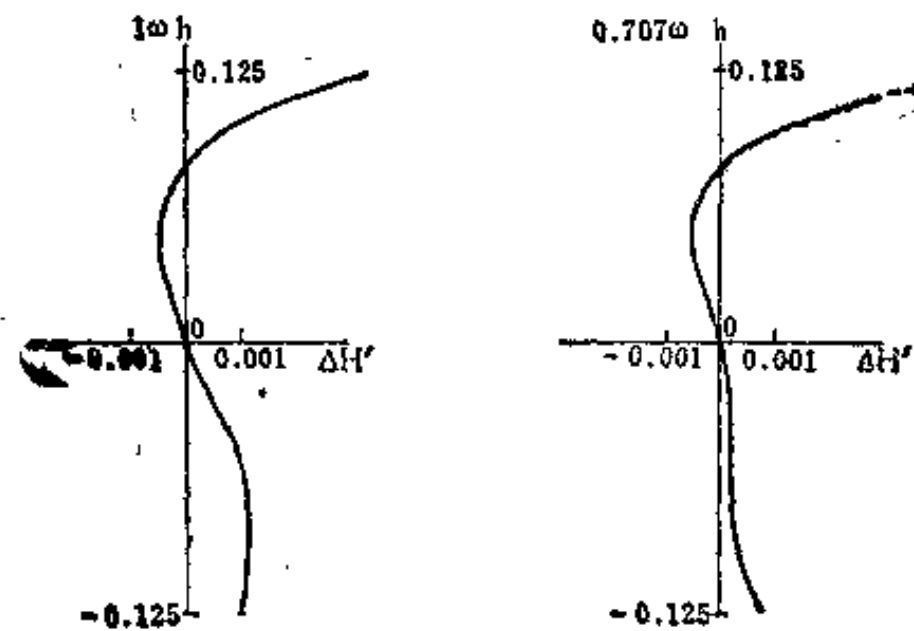
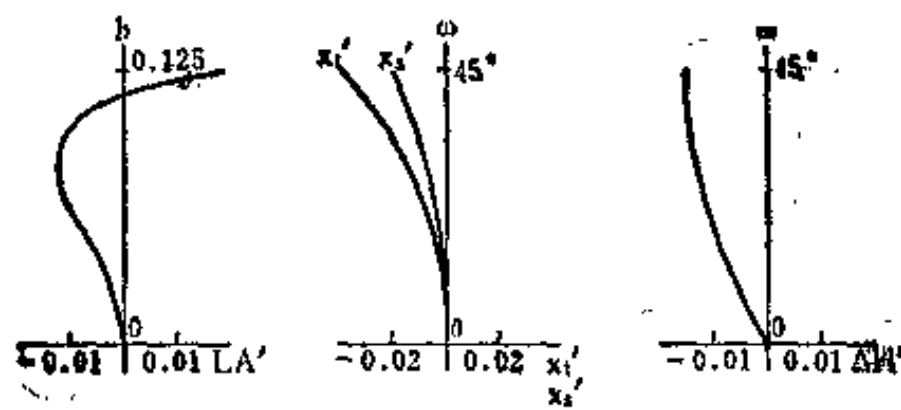
E.F.L=1 B.F.L=1.8865 FNo.=4 F.A.=±45°\*



序号	r	d	nd	v	序号	r	d	nd	v
1	3.2200	0.2695	1.6935	53.6	9	∞	0.0236		
2	7.2340	0.0047			10	0.7267	0.1087	1.7280	38.5
3	1.1905	0.1040	1.6935	53.6	11	0.4260	0.2222	1.6100	38.0
4	0.6783	0.2931			12	-1.0269	0.0875*		
5	1.6760	0.0946	1.6935	53.6	13	-0.7678	0.0496	1.6780	32.2
6	0.5201	0.2600			14	0.4232	0.1040	1.5160	56.8
7	6.3020	0.1418	1.6200	60.8	15	1.4898	0.1584	1.6780	50.8
8	0.8510	0.6099	1.5500	45.4	16	-0.7366			

$$0.0875^* = 0.0435 + 0.0440$$

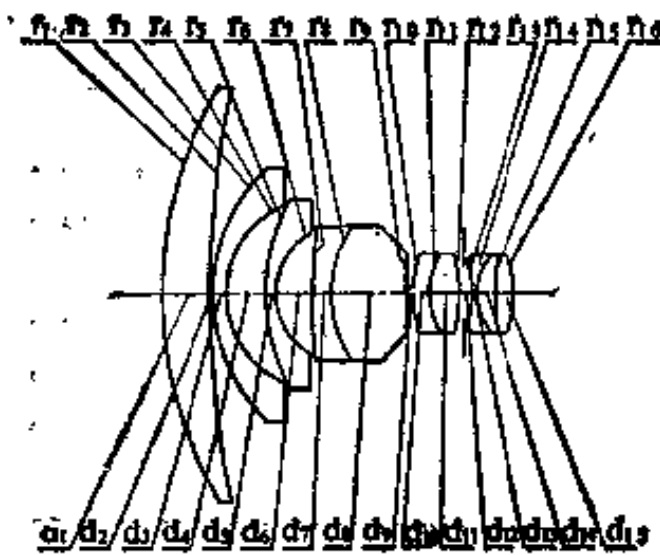
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP (1ω)
	-0.00153	0.00159	-0.00159	-0.00046	-0.00357	1	-1.5%
h 或 ω %	LA'	ΔH'	$x_1'$	$x_2'$	$x_1' - x_2'$	Kf <sub>1</sub>	Kf <sub>0.7</sub>
100	0.0197	-0.0153	-0.0394	-0.0193	-0.0201	0.0021	0.00059
70	-0.0133	-0.0129	-0.0161	-0.0108	-0.0052	0.0037	0.00026



编号: 03-02-075

# 超 广 角 镜 头

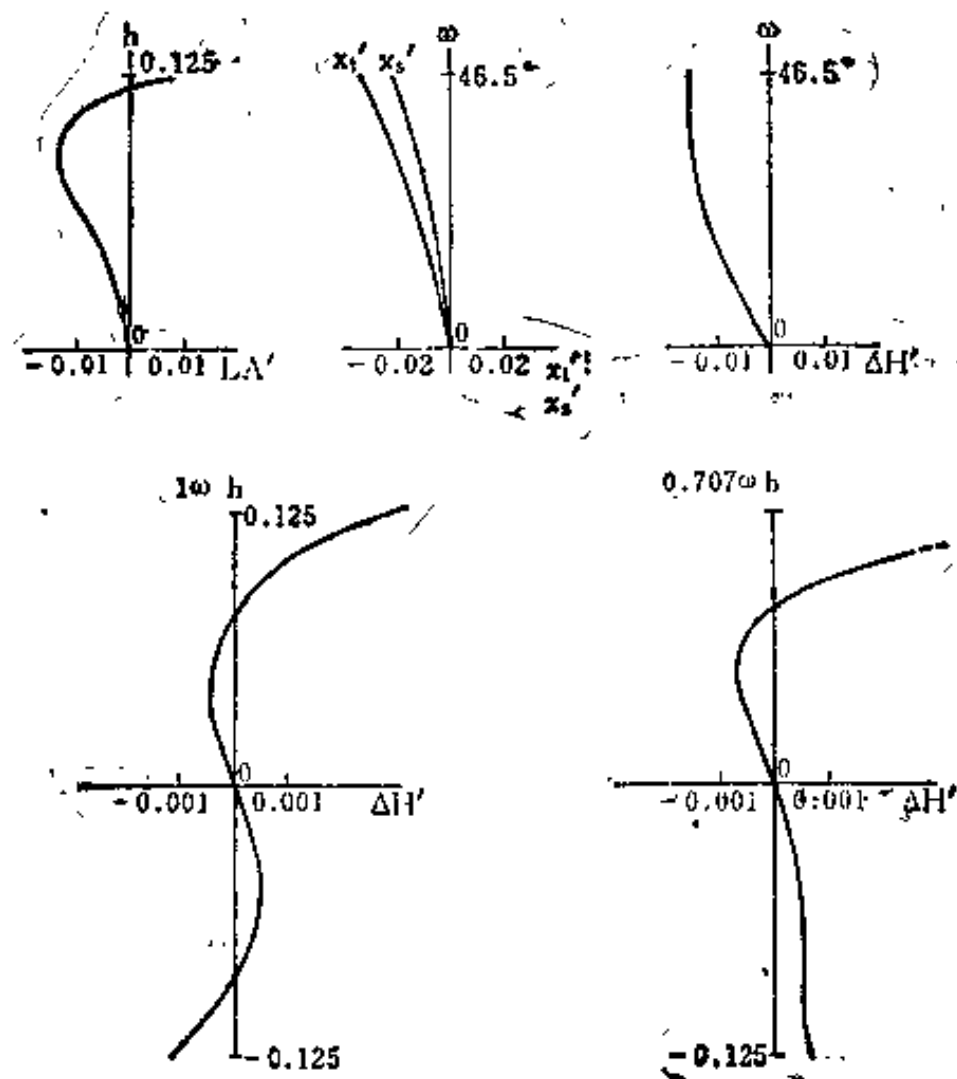
E.F.L = 1    B.F.L = 1.8239    FNo. = 4    F.A. =  $\pm 46.5^\circ$



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	2.9820	0.3722	1.5878	68.2	9	-9.0080	0.0424		
2	7.6730	0.0047			10	0.8065	0.1107	1.7352	41.0
3	1.8197	0.1036	1.6935	53.6	11	0.5397	0.2261	1.6168	36.6
4	0.7171	0.2874			12	-1.2398	0.0872*		
5	1.5198	0.0848	1.6935	53.6	13	-0.9116	0.0495	1.6889	31.1
6	0.5093	0.2615			14	0.4306	0.1272	1.5145	54.7
7	14.7230	0.1413	1.6428	58.4	15	1.6246	0.1413	1.6935	53.6
8	0.8413	0.5654	1.5731	42.7	16	-0.7538			

$$0.0872^* = 0.0432 + 0.0440$$

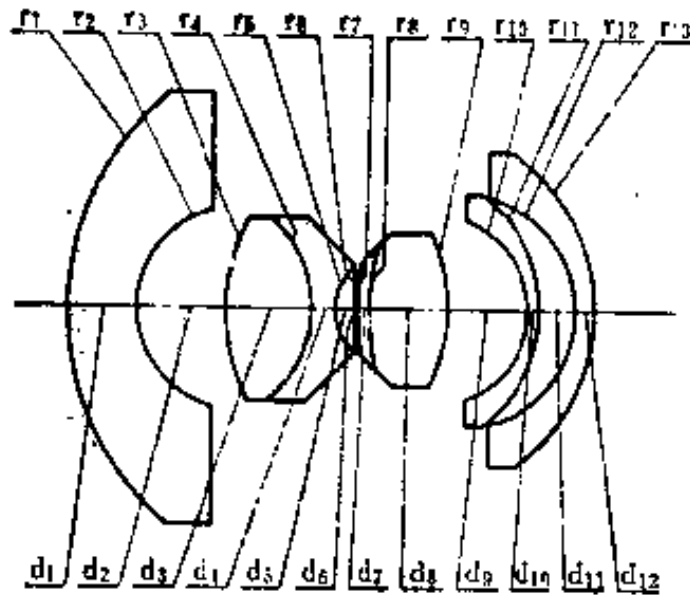
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00146	0.00204	-0.00305	-0.00041	-0.00306	1.05	-1.4%
h 或 $\omega$ %	LA'	$\Delta H'$	$x_t'$	$x_s'$	$x_t' - x_s'$	$K_{T1}'$	$K_{T0.7}'$
100	0.0083	-0.01490	-0.0334	-0.0206	-0.0128	0.00074	0.00003
70	-0.0142	-0.01486	-0.0225	-0.0130	-0.0095	0.00376	0.00010



编号: 03-02-076

# 广 角 物 镜

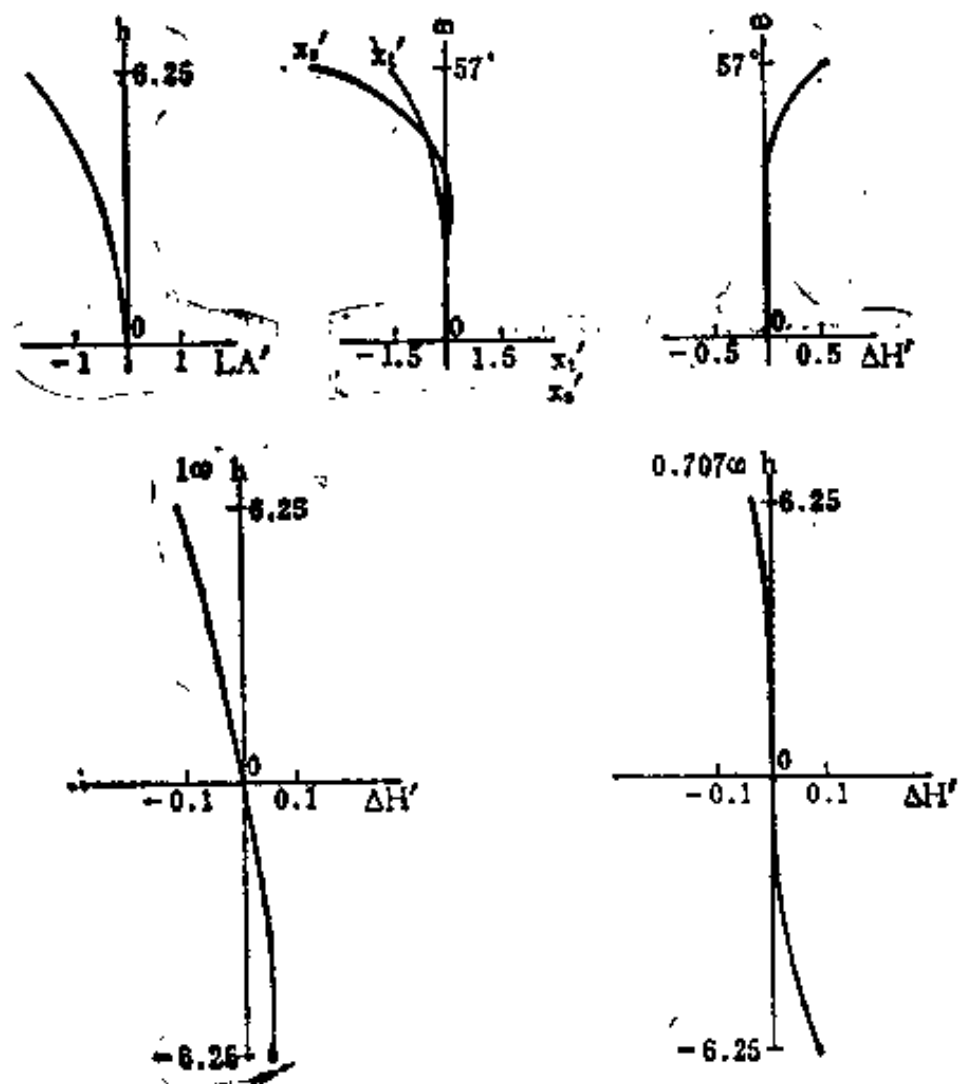
E.F.L=100.9 B.F.L=41 FNo. = 8 F.A. =  $\pm 57'^{**}$



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	103.80	25.31	1.69651	55.6	8	101.00	28.00	1.7053	53.9
2	37.96	34.17			9	-69.85	29.61		
3	69.85	31.36	1.72952	36.6	10	-36.70	4.05	1.48744	70.0
4	40.75	9.11	1.69823	31.1	11	-54.57	13.64		
5	20.78	6.83	1.71317	36.5	12	-43.96	6.33	1.48744	70.0
6	2842.00	0.30*			13	-71.72			
7	-2480.30	4.39	1.71079	29.7					

0.30\* = 0.15 + 0.15

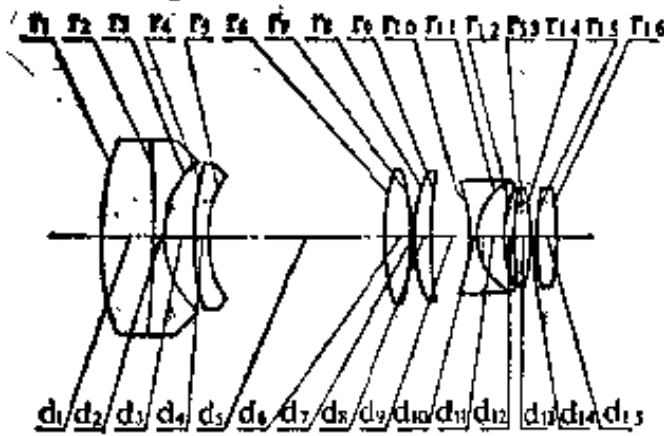
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.01331	0.00059	-0.00716	0.01467	0.00732	155.4	0.3%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_2 - x'_1$	$K'_{11}$	$K'_{10.7}$
100	-1.862	0.536	-1.456	-3.743	2.287	-0.0285	-0.0139
70	-0.898	0.056	-0.399	-0.374	-0.025	0.0187	0.0085



编号: 03-02-077

# 反 远 距 型 物 镜

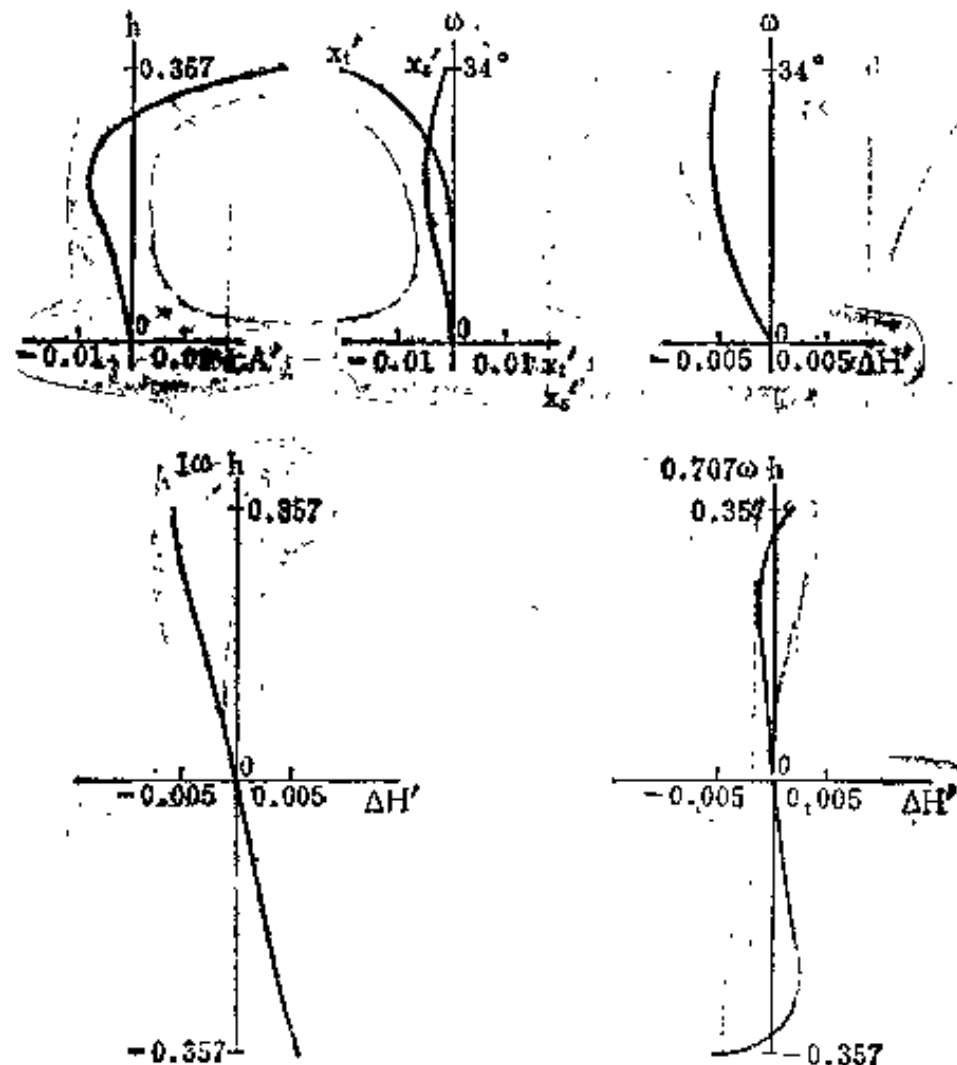
E.F.L=1 B.F.L=1.467 FNo.=1.4 E.A.=±34°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	3.406	0.640	1.74900	35.00	9	7.090	0.461		
2	-21.854	0.148	1.50970	64.44	10	-1.737	0.083	1.70035	30.28
3	1.206	0.398			11	0.755	0.335	1.74900	35.00
4	4.371	0.140	1.70000	41.20	12	1.410	0.083*		
5	1.311	2.195			13	2.790	0.293	1.65100	58.60
6	3.015	0.315	1.57427	52.02	14	-1.737	0.004		
7	-3.015	0.006			15	3.406	0.252	1.63945	55.70
8	1.942	0.246	1.65100	58.60	16	-3.406			

0.083\* = 0.043 + 0.040

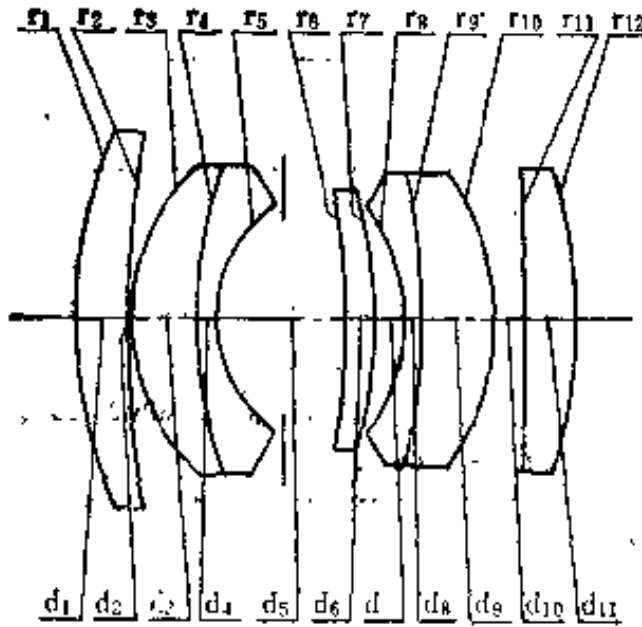
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(100)
	-0.01005	0.00707	-0.00397	-0.00389	-0.00869	0.67	-0.8%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>11</sub> '	K <sub>10.7</sub> '
100	0.02855	-0.00532	-0.02192	-0.00145	-0.02047	-0.00022	-0.00055
70	-0.00726	-0.00615	-0.00247	-0.00452	-0.00205	-0.00162	-0.00064



编号: 03-02-078

# 大孔径摄影物镜

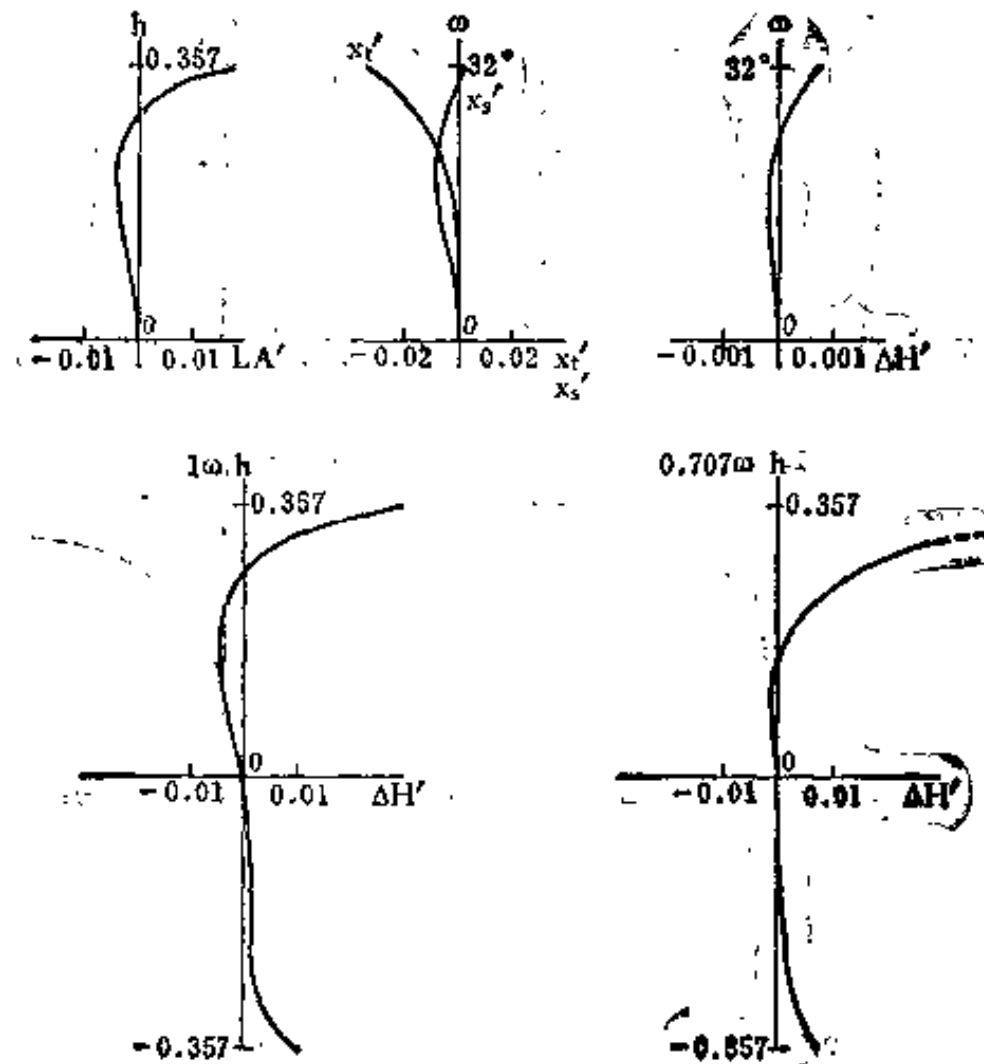
E.F.L = 1    B.F.L = 0.5462    FNo. = 1.4    F.A. =  $\pm 32^\circ$



序号	r	d	n <sub>e</sub>	v	序号	r	d	n <sub>e</sub>	v
1	0.84171	0.1000	1.72341	50.10	7	-0.8639	0.0494		
2	2.5689	0.0006			8	-0.3448	0.0374	1.76167	27.32
3	0.3812	0.1297	1.78990	48.0	9	-1.3714	0.1314	1.78990	48.0
4	0.8639	0.0374	1.70444	29.84	10	-0.4575	0.0171		
5	0.2552	0.2309*			11	-20.0000	0.1371	1.72056	47.59
6	-1.6077	0.0554	1.78990	48.0	12	-0.8417			

\*0.23090 = 0.11545 + 0.11545

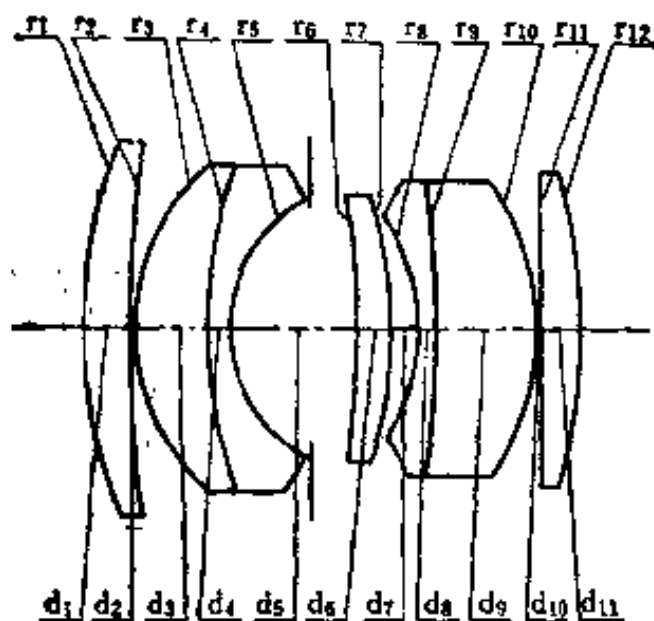
	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00508	0.00041	0.00216	-0.00892	0.00011	0.63	0.12%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K'_{1.1}$	$K'_{1.7}$
100	0.0162	0.00076	-0.0351	0.0010	-0.0361	0.0201	-0.0008
70	-0.0036	-0.00004	-0.0072	-0.0084	0.0012	0.0781	0.0056



编号: 03-02-079

# 大孔径摄影物镜

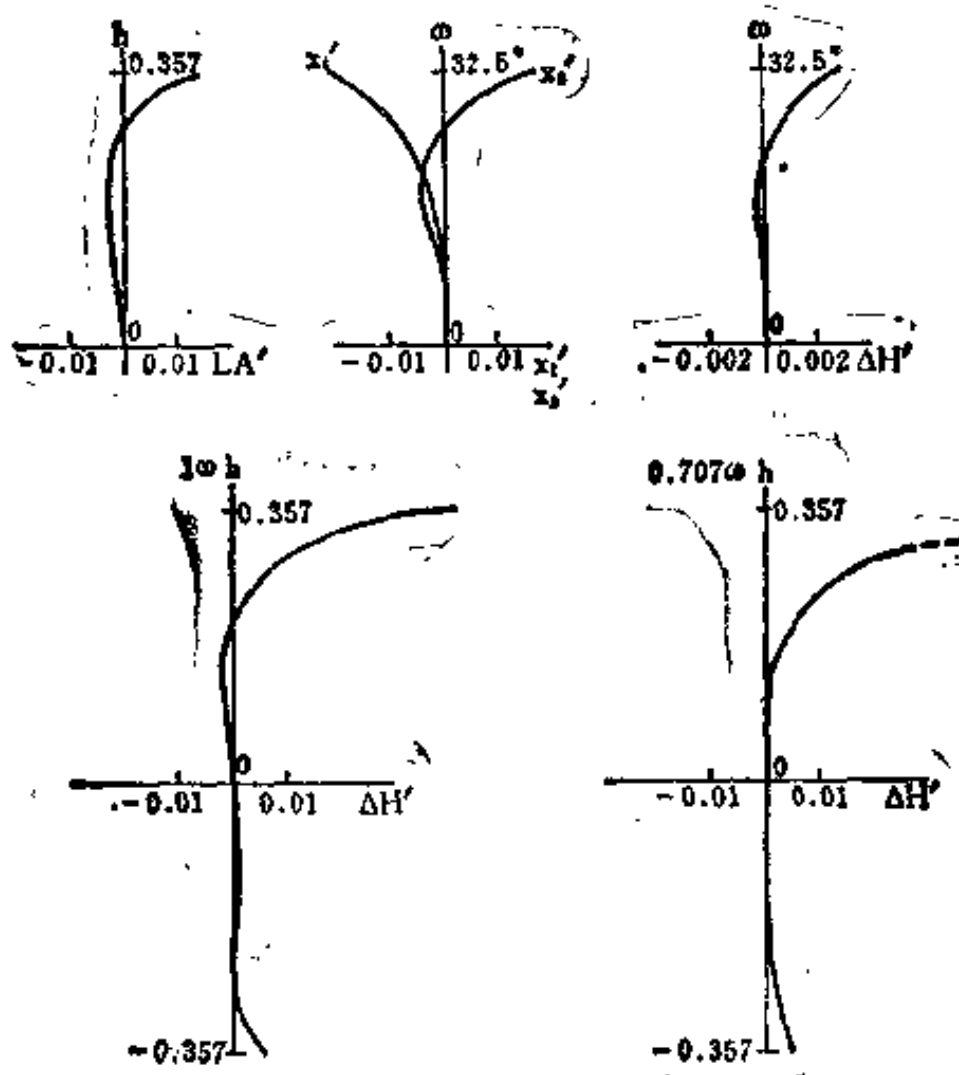
E.F.L=1.04 B.F.L=0.6116 FNo.=1.4 F.A.=±82.5°



序号	r	d	n <sub>e</sub>	v	序号	r	d	n <sub>e</sub>	v
1	0.8824	0.0894	1.72056	47.69	7	-0.8984	0.0514		
2	2.7880	0.0078			8	-0.3562	0.0388	1.76167	27.34
3	0.3996	0.1348	1.78990	48.0	9	-1.9892	0.1800	1.78990	48.0
4	0.8984	0.0388	1.70444	29.84	10	-0.4858	0.0078		
5	0.2654	0.2400*			11	∞	0.0756	1.78990	48.0
6	-1.6720	0.0576	1.78990	48.0	12	-1.0658			

0.2400\* = 0.1200 + 0.1200

	ΣS <sub>1</sub>	ΣS <sub>2</sub>	ΣS <sub>3</sub>	ΣS <sub>4</sub>	ΣS <sub>5</sub>	HI	QP(1ω)
ω=0	-0.00352	0.00030	0.00144	-0.00618	-0.00026	0.65	0.4%
h或ω%	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>1</sub> ' - x <sub>2</sub> '	K <sub>T1</sub>	K <sub>T0.7</sub>
100	0.0153	0.0029	-0.0223	0.0175	-0.0398	0.0237	0.0009
70	-0.0019	-0.000009	-0.0047	-0.0032	0.0015	0.0511	0.0055



编号: 03-02-081

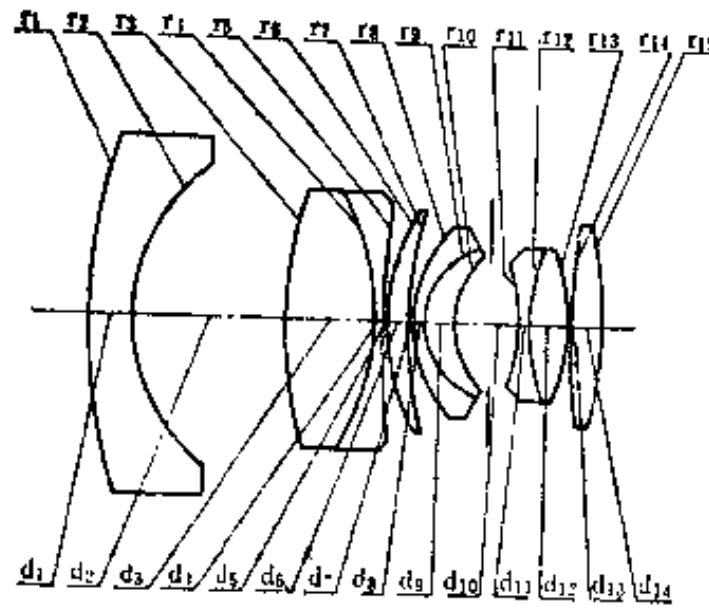
# 广 角 物 镜

E.F.L=0.888

B.F.L=0.832

FNo. = 2

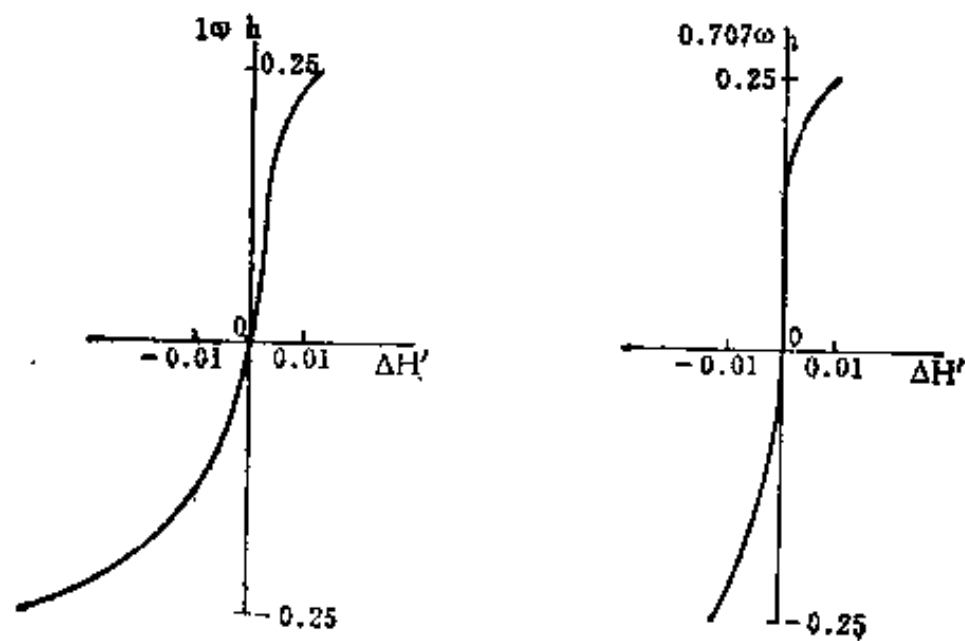
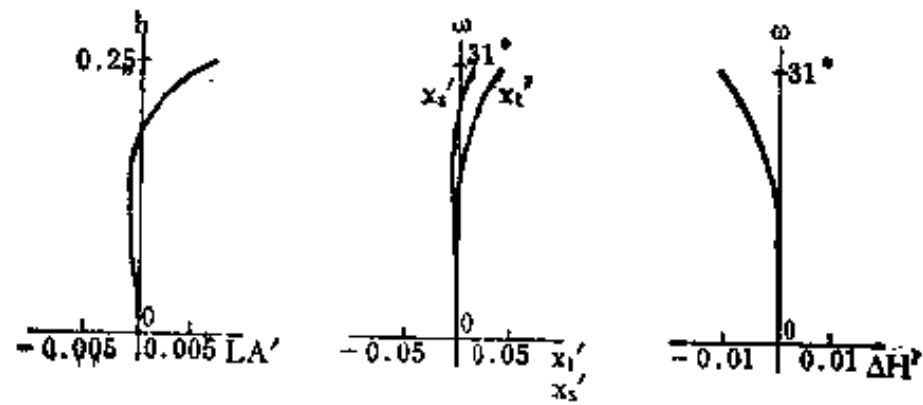
F.A. =  $\pm 31^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	1.70	0.14	1.50	67	9	0.25	0.10	1.61	59
2	0.60	0.48			10	0.31	0.19*		
3	1.20	0.23	1.69	54	11	-0.60	0.04	1.60	38
4	-0.80	0.03	1.57	51	12	0.60	0.12	1.59	61
5	2.90	0.01			13	-0.65	0.01		
6	0.70	0.07	1.71	54	14	3.30	0.09	1.71	34
7	1.50	0.01			15	-1.50			
8	0.43	0.03	1.60	38					

0.19\* = 0.13 + 0.06

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1%)
	-0.00082	-0.00127	0.00106	-0.00320	-0.00279	0.594	-1.9%
h 或 $\omega\%$	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{11}$	$K'_{10.7}$
100	0.00632	-0.0112	0.0331	0.0120	0.0211	-0.0145	-0.0057
70	-0.00083	-0.0029	0.0074	-0.0039	0.0113	-0.0009	-0.0025





编号: 03-02-082

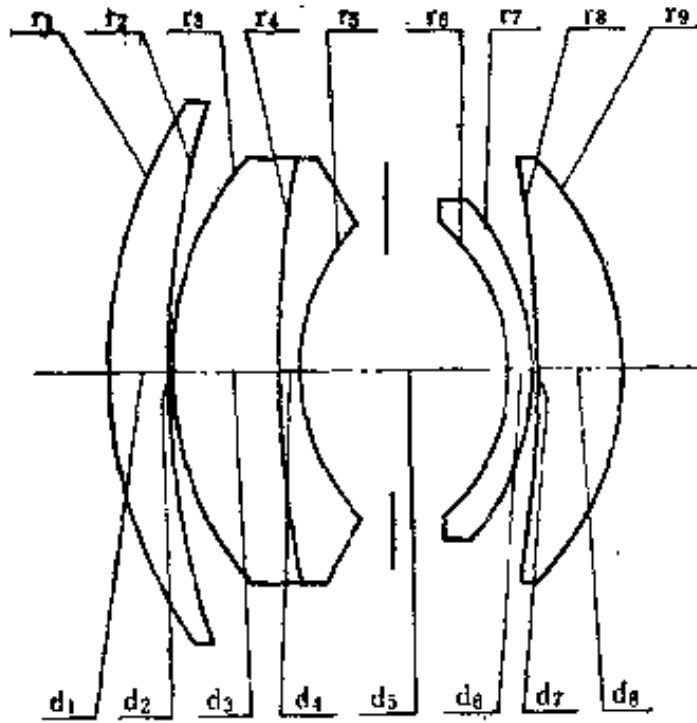
# 改进的高斯型五片式摄影镜头

E.F.L=100.7

B.F.L=78.3

FNo.=2.8

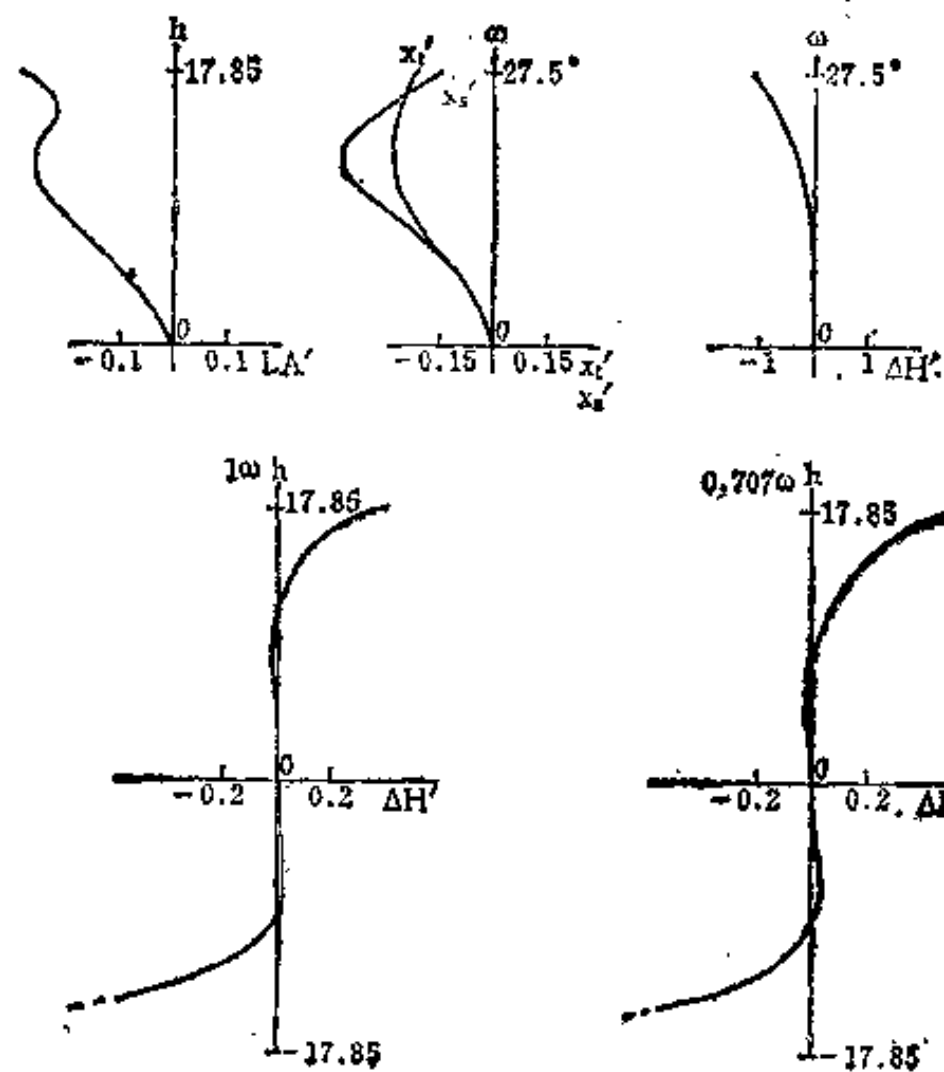
F.A.=±27.5°



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	45.8	5.50	1.6668	33.1	6	-18.3	2.40	1.7283	28.3
2	83.0	0.12			7	-24.3	0.12		
3	30.6	9.80	1.6935	53.5	8	-123.0	7.80	1.6204	60.3
4	109.2	2.10	1.6889	31.1	9	-28.0			
5	19.8	19.40*							

19.40\* = 9.70 + 9.70

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.0785	0.0243	0.0118	-0.1057	-0.1867	52.5	-2.2%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_s$	$x'_s$	$x'_i - x'_s$	$K'_{T1}$	$K'_{T0.7}$
100	-0.291	-1.166	-0.255	-0.144	-0.111	-1.509	-0.105
70	-0.270	-0.299	-0.298	-0.448	0.150	-0.932	-0.052



编号: 03-02-083

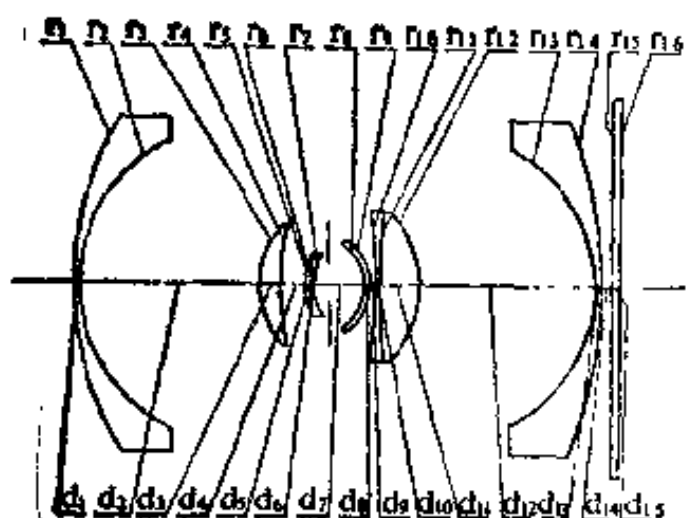
# 超 广 角 镜 头

E.F.L=1

B.F.L=0

FNo.=5.8

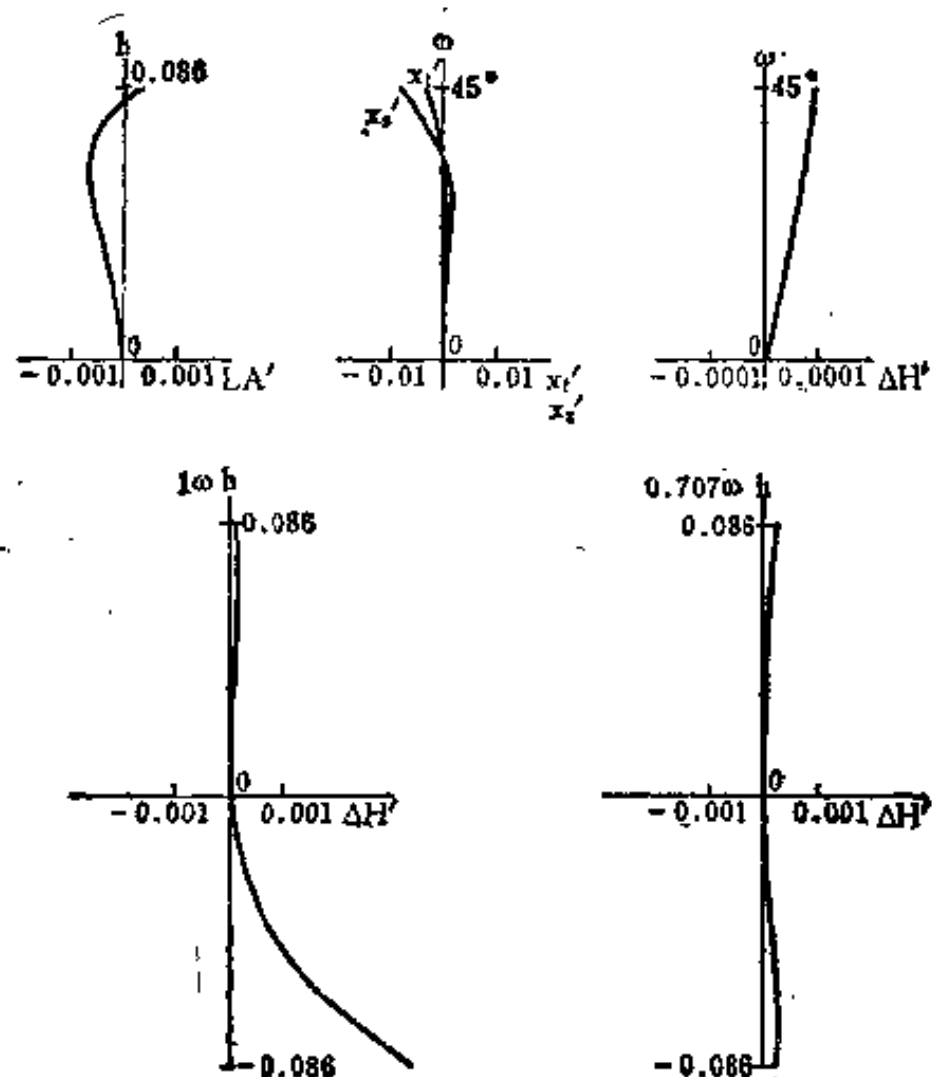
F.A.= $\pm 45^\circ$



序号	r	d	na	v	序号	r	d	na	v
1	1.5172	0.0341	1.700	56.2	9	-0.3050	0.0280		
2	0.7949	0.8965			10	-3.8914	0.0170	1.651	33.6
3	0.4485	0.1035	1.613	36.9	11	4.8691	0.2062	1.651	58.6
4	1.4801	0.1188			12	-0.5143	0.8640		
5	0.3500	0.0239	1.748	45.8	13	-0.7712	0.0343	1.720	50.3
6	0.9794	0.0128	1.748	27.8	14	-2.2429	0.0502		
7	0.2832	0.2457*			15	$\infty$	0.0417	1.524	58.8
8	-0.2413	0.0202	1.801	25.5	16	$\infty$			

0.2457\* = 0.1000 + 0.1457

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.000044	-0.000098	0.000011	0.000074	-0.000210	1	0.009%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{T1}$	$K'_{T0.7}$
100	0.00034	0.000095	-0.00350	-0.00785	0.00435	0.00180	0.00086
70	-0.00072	0.000078	0.00001	0.00002	-0.00003	0.000184	0.000156



编号: 03-02-084

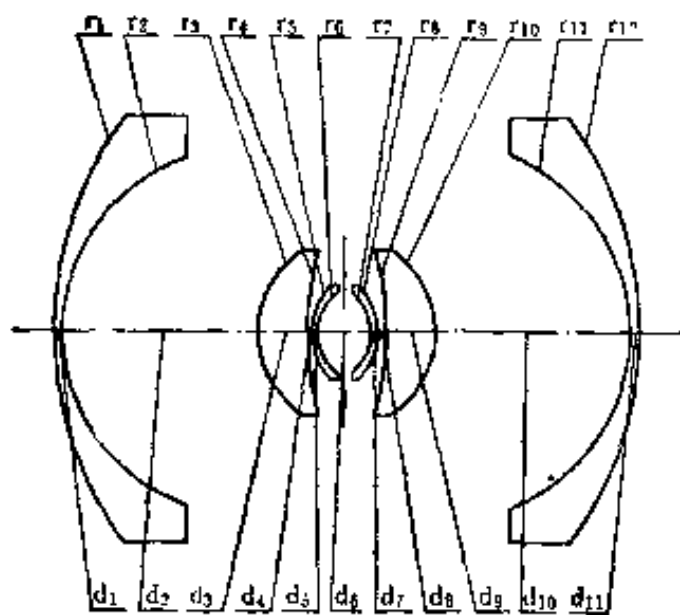
# 超 广 角 镜 头

E.F.L = 1

B.F.L = 0.1655

FNo. = 5.8

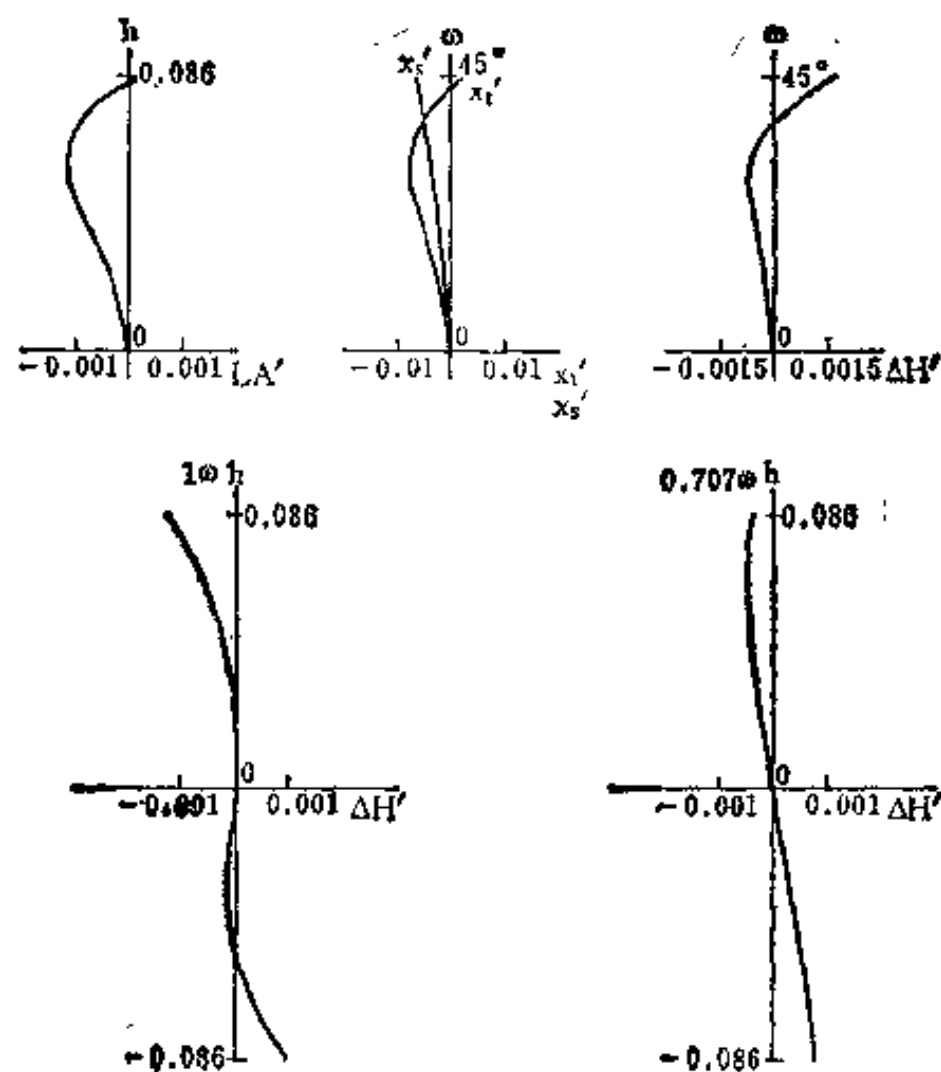
F.A. =  $\pm 45^\circ$



序号	r	d	n <sub>D</sub>	v	序号	r	d	n <sub>D</sub>	v
1	1.51712	0.03408	1.700	56.2	7	-0.21875	0.02130	1.748	27.9
2	0.79484	0.81275			8	-0.26565	0.00102		
3	0.41764	0.20318	1.613	59.3	9	-1.29659	0.21553	1.651	58.6
4	1.21430	0.03216			10	-0.41553	0.80937		
5	0.27141	0.02130	1.748	27.9	11	-0.76831	0.03408	1.748	27.9
6	0.21875	0.23346*			12	-1.49349			

0.23346\* = 0.11673 + 0.11673

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.000071	0.000022	-0.000100	0.0030006	-0.000463	1	0.17%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_t$	$x'_s$	$x'_t - x'_s$	$K_{T1}^2$	$K_{T0.7}^2$
100	0.00026	0.00173	0.00178	-0.00694	0.00872	-0.000056	-0.000125
70	-0.00121	-0.00073	-0.00852	-0.00356	-0.00496	0.000274	0.000063



编号: 03-02-085

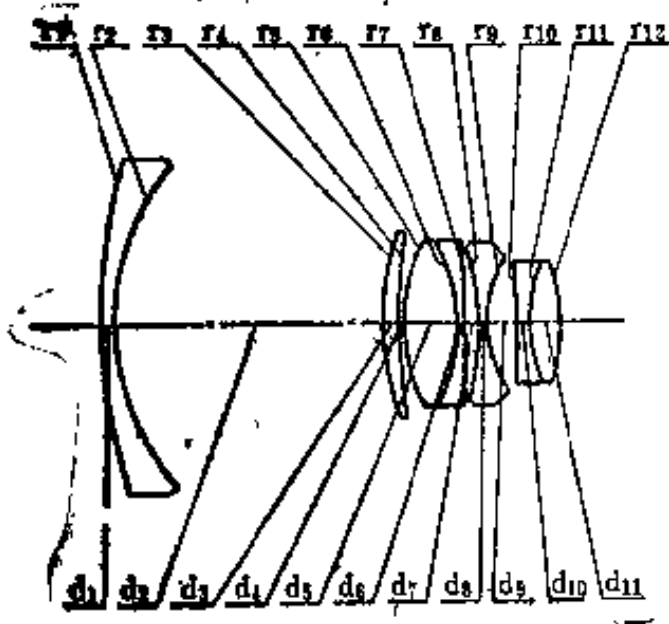
# 广 角 物 镜

E.F.L = 1

B.F.L = 1

FNo. = 2.8

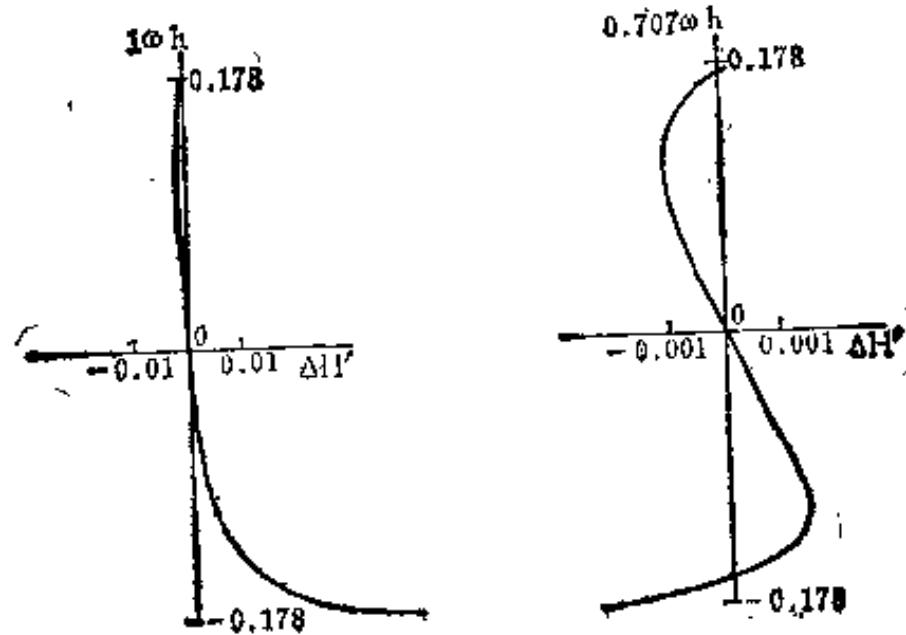
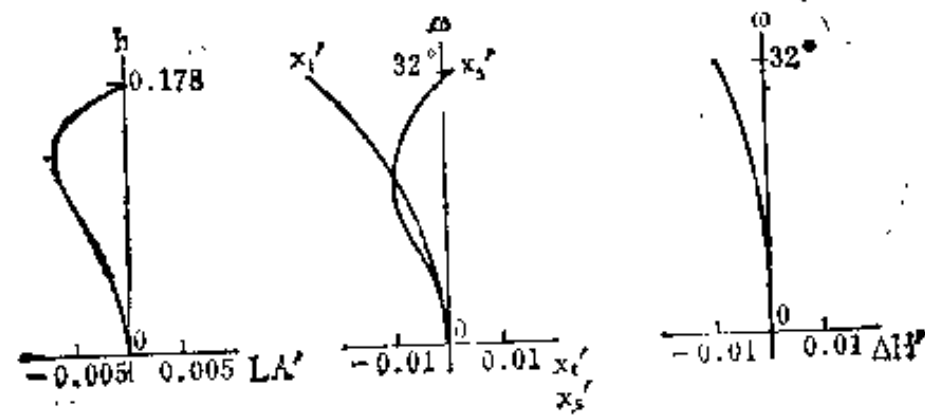
F.A. =  $\pm 32^\circ$



序号	r	d	$n_d$	$v$	序号	r	d	$n_d$	$v$
1	2.034	0.045	1.60557	60.02	7	-6.597	0.044		
2	0.936	1.001			8	-0.970	0.040	1.62576	35.74
3	1.056	0.060	1.70000	41.18	9	0.463	0.107*		
4	3.200	0.006			10	-12.730	0.051	1.62576	35.74
5	0.644	0.203	1.69100	54.8	11	0.567	0.105	1.69100	54.8
6	-0.671	0.027	1.65100	58.6	12	-0.650			

$$0.107^* = 0.057 + 0.050$$

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1%)
	-0.00139	0.00039	-0.00032	-0.00153	-0.00238	0.63	-1.5%
$h$ 或 $\omega\%$	$LA'$	$\Delta H'$	$x'_t$	$x_s$	$x'_t - x'_s$	$K'_{T1}$	$K'_{T0.7}$
100	0.00026	-0.00938	-0.0264	0.0011	-0.0275	0.02148	0.00191
70	-0.00679	-0.00320	-0.0126	-0.0094	-0.0032	-0.00099	0.00021



编号: 03-02-086

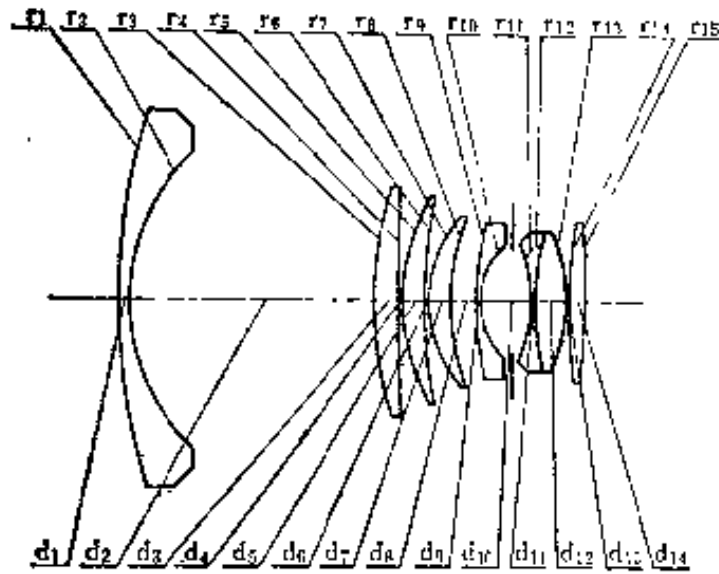
# 广角摄影物镜

E.F.L=0.998

B.F.L=0.955

FNo. = 2

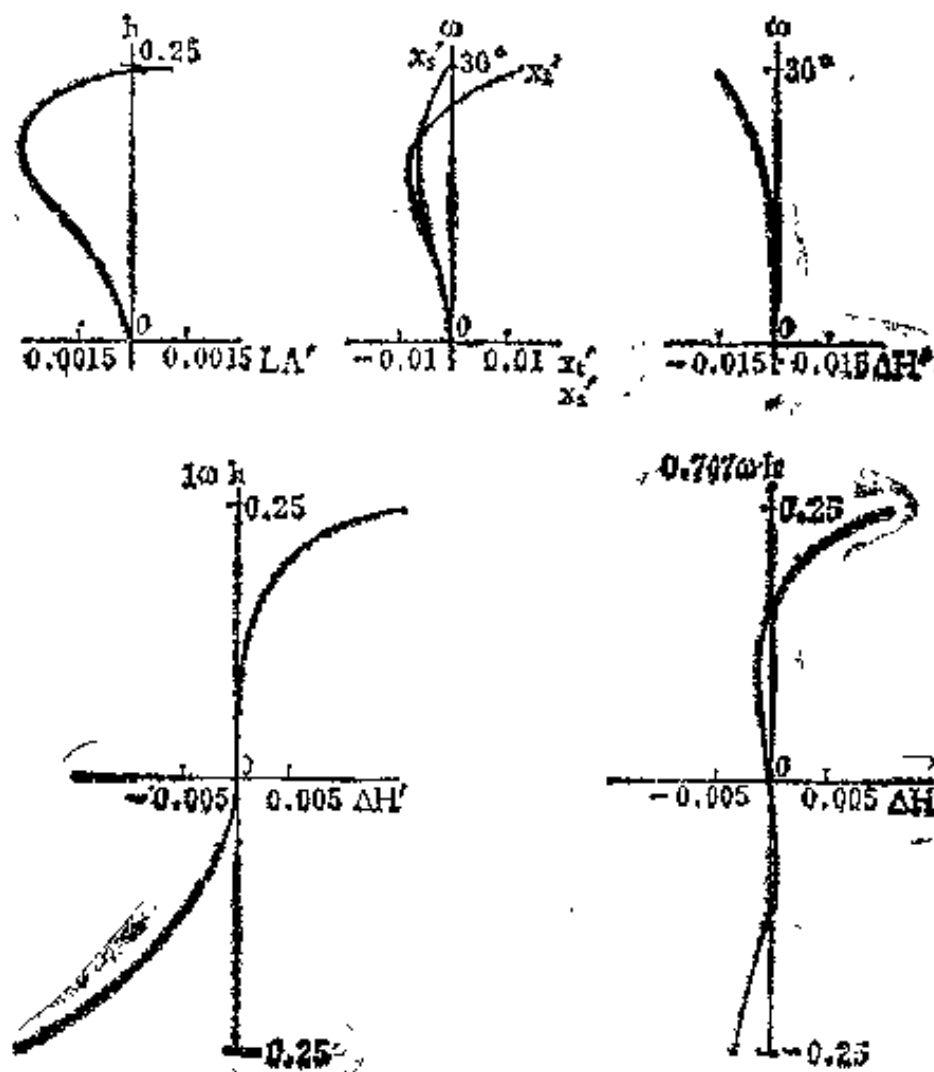
F.A. =  $\pm 30^\circ$



序号	r	d	n <sub>d</sub>	v <sub>d</sub>	序号	r	d	n <sub>d</sub>	v <sub>d</sub>
1	2.378	0.044	1.6127	58.6	9	1.211	0.020	1.6254	35.6
2	0.846	1.021			10	0.357	0.209*		
3	1.634	0.099	1.6204	60.3	11	-0.625	0.020	1.6364	35.4
4	11.464	0.014			12	1.200	0.124	1.6968	55.61
5	0.885	0.094	1.6127	58.6	13	-0.729	0.005		
6	3.363	0.006			14	2.489	0.065	1.6968	55.61
7	0.556	0.107	1.6425	58.09	15	-2.945			
8	1.271	0.092							

0.209\* = 0.105 + 0.104

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	-0.00131	-0.00045	-0.00075	-0.00199	-0.00462	0.58	-2.8%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{F1}$	$K'_{10.7}$
100	0.00106	-0.0162	0.0127	-0.0015	0.0142	-0.00271	-0.00362
70	-0.00321	-0.0046	-0.0084	-0.0074	-0.0010	0.00414	-0.00066



编号: 03-02-088

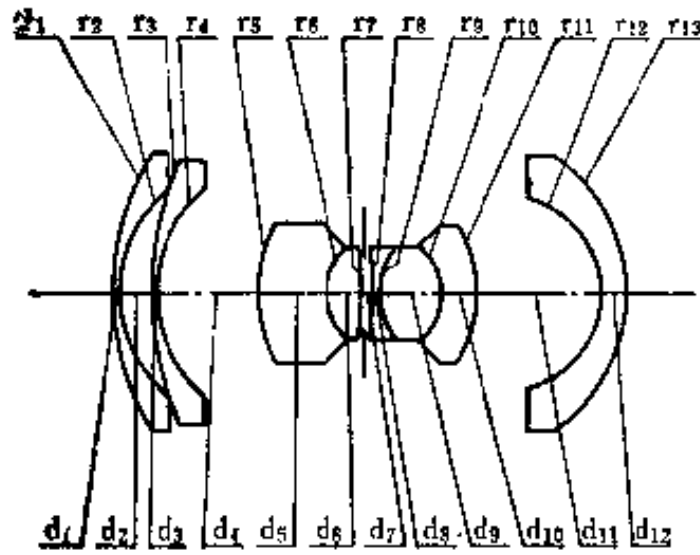
# 五组元超广角物镜

E.F.L=99.95

B.F.L=20.5

FNo.=3.4

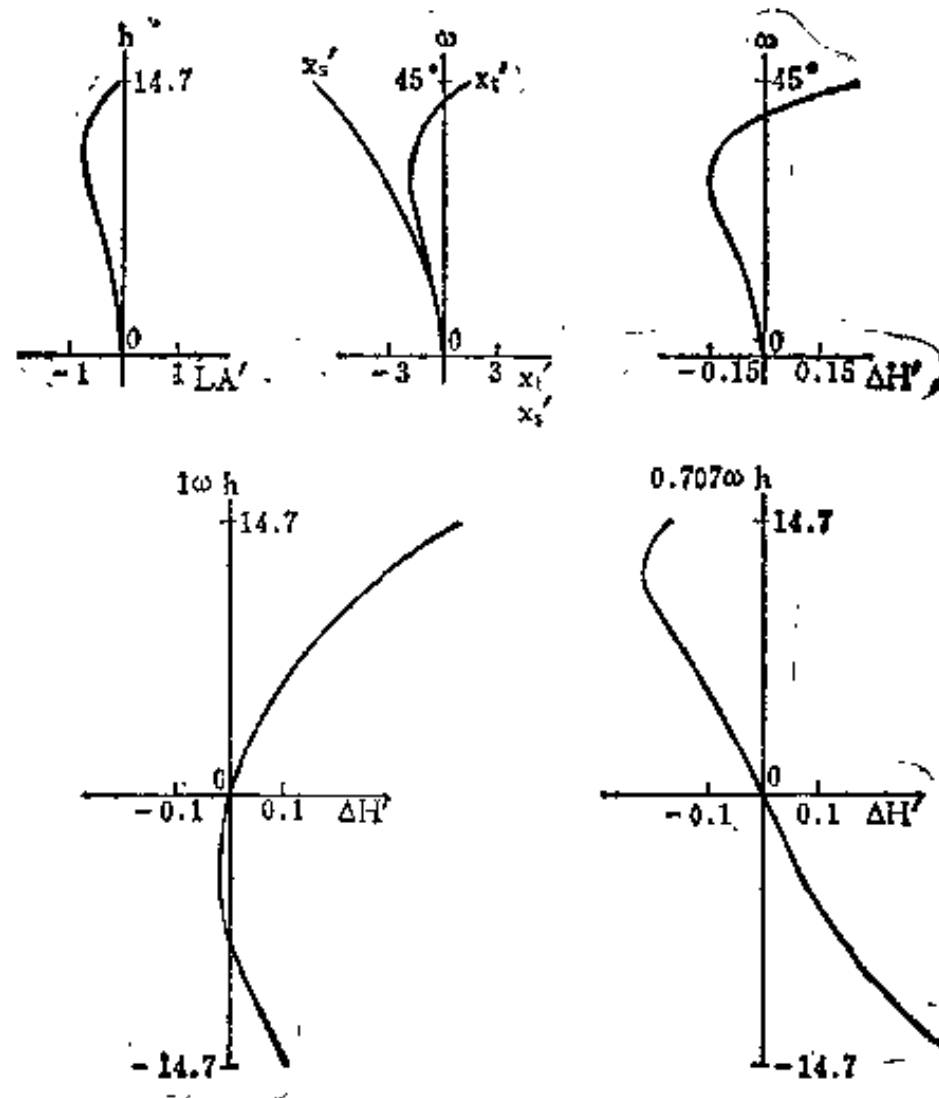
F.A.=±45°



序号	r	d	nd	v	序号	r	d	nd	v
1	138.19	3.4	1.50380	66.7	8	-346.44	3.9	1.56993	57.5
2	73.80	17.8			9	41.93	34.3	1.62500	59.0
3	162.28	3.4	1.48697	70.3	10	-31.48	19.6	1.71966	29.3
4	74.64	56.2			11	-76.36	69.6		
5	76.38	40.1	1.72050	50.3	12	-55.28	12.5	1.64200	58.1
6	33.62	18.2	1.60739	51.0	13	-93.62			
7	-267.23	6.4*							

6.4\* = 3.2 + 3.2

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP (1%)
	-0.0999	-0.0355	-0.0038	-0.2345	-0.1682	99.9	0.27%
h 或 ω %	LA'	ΔH'	$x_1$	$x_2$	$x_1' - x_2'$	$K_{T1}'$	$K_{T0.7}'$
100	-0.113	0.271	1.272	-7.448	8.720	0.275	0.130
70	-0.741	-0.152	-1.919	-3.505	1.586	0.100	0.006



编号: 03-02-089

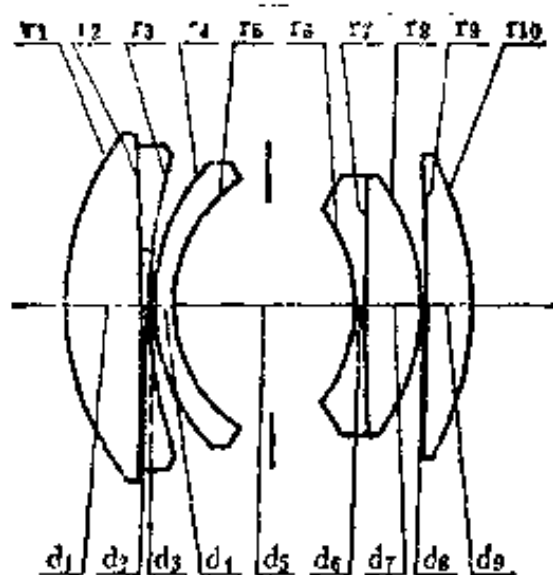
# 高斯型四组元广角物镜

E.F.L=100

B.F.L=78.02

FN<sub>0</sub>=2.8

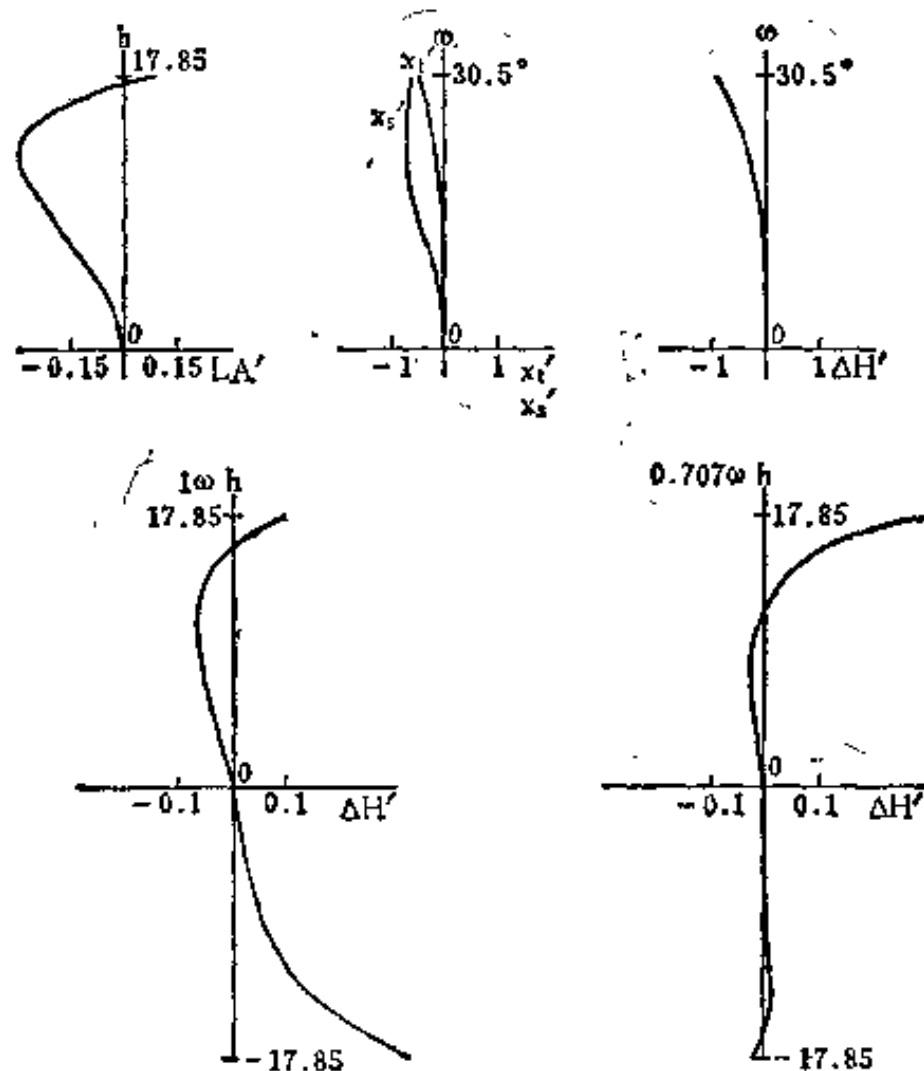
F.A.=±30.5°



序号	r	d	n <sub>d</sub>	v	序号	r	d	n <sub>d</sub>	v
1	42.8325	11.6958	1.7200	50.3	6	-23.7632	1.2989	1.7618	26.5
2	-360.7830	1.3042	1.6676	41.9	7	360.7830	8.3722	1.6615	35.9
3	74.7513	0.1294			8	-30.7973	0.4102		
4	30.7973	4.7330	1.7618	26.5	9	-360.7830	6.1214	1.7440	44.9
5	22.7214	27.7134*			10	-46.8675			

27.7134\* = 14.1444 + 13.5690

	ΣS <sub>1</sub>	ΣS <sub>2</sub>	ΣS <sub>3</sub>	ΣS <sub>4</sub>	ΣS <sub>5</sub>	HI	QP(1ω)
	-0.0703	0.0087	0.0419	-0.1691	-0.2207	58.6	-1.7%
h 或 ω %	LA'	ΔH'	x <sub>1</sub> '	x <sub>2</sub> '	x <sub>3</sub> ' - x <sub>4</sub> '	K <sub>FI</sub>	K <sub>FD.7</sub>
100	0.085	-0.970	-0.489	-0.697	0.208	0.226	0.034
70	-0.299	-0.295	-0.148	-0.714	0.506	0.153	0.014



编号: 03-02-090

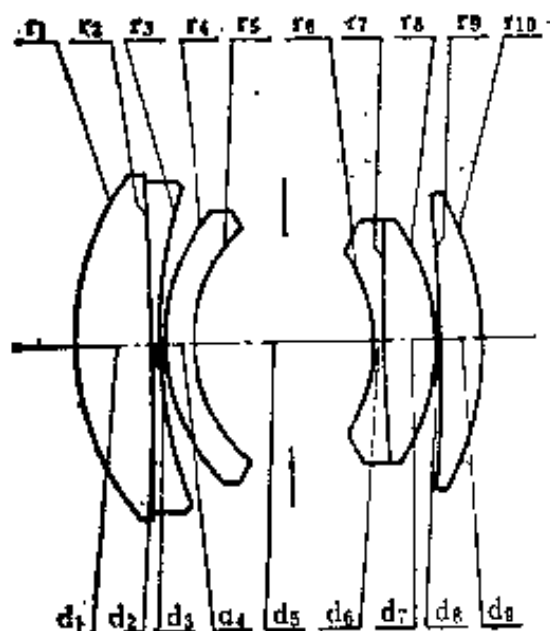
# 高斯型四组元广角物镜

E.F.L=100

B.F.L=84.53

FNo.=2.8

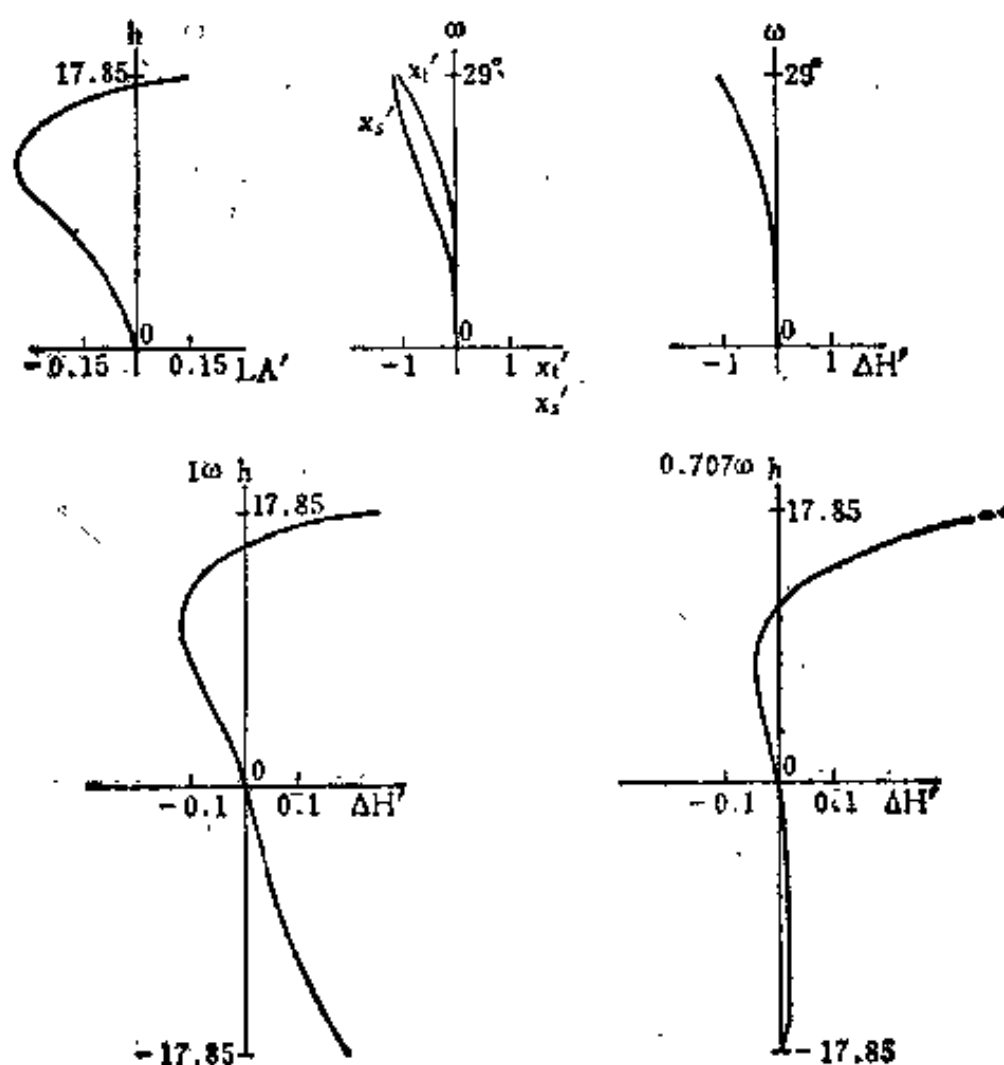
F.A.=±29°



序号	r	d	$n_d$	v	序号	r	d	$n_d$	v
1	42.61765	11.68507	1.7170	48.2	6	-24.25732	1.29879	1.7618	26.5
2	-360.4458	1.30278	1.6490	38.2	7	360.4458	8.99159	1.6398	34.6
3	72.23246	0.12888			8	-30.76653	0.09991		
4	30.76853	3.49673	1.7618	26.5	9	-360.4458	7.31316	1.7440	44.9
5	22.70018	27.68711*			10	-46.53649			

27.68711\* = 14.14440 + 13.54271

	$\Sigma S_1$	$\Sigma S_2$	$\Sigma S_3$	$\Sigma S_4$	$\Sigma S_5$	HI	QP(1 $\omega$ )
	- 0.08047	0.00008	0.04034	- 0.16048	- 0.29309	55.4	- 1.9%
h 或 $\omega$ %	LA'	$\Delta H'$	$x'_1$	$x'_2$	$x'_1 - x'_2$	$K'_{f1}$	$K'_{f0.7}$
100	0.141	- 1.068	- 1.071	- 1.119	0.048	0.2209	- 0.0058
70	- 0.341	- 0.355	- 0.341	- 0.792	0.451	0.2724	0.0164





编号: 03-02-094

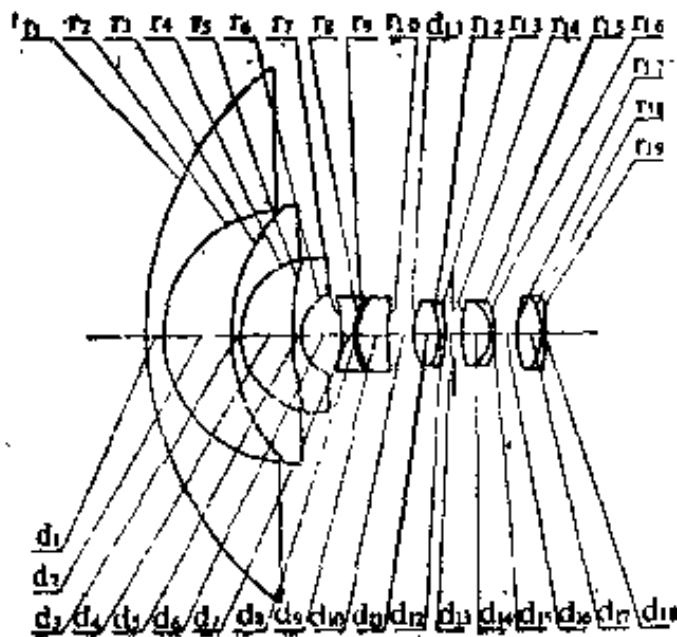
## 超广角鱼眼镜头

E.F.L.=10.2

B.F.L.=25.09

FNo.=4

F.A.= $\pm 110^\circ$



序号	r	d	nd	v	序号	r	d	nd	v
1	143.470	7.0	1.51860	64.2	11	31.000	10.0	1.51454	54.6
2	52.500	28.0			12	-29.000	2.0	1.78470	26.1
3	76.400	3.8	1.51680	64.2	13	-58.000	8.0		
4	31.521	21.8			14	65.000	11.3	1.51454	54.6
5	125.000	3.0	1.51680	64.2	15	-16.000	1.6	1.74950	35.0
6	17.100	15.5			16	-36.110	10.0		
7	-98.000	7.0	1.62041	60.3	17	40.000	10.0	1.56384	60.8
8	25.500	0.7			18	-26.000	1.0	1.71736	29.5
9	27.160	12.6	1.72825	28.3	19	-679.823			
10	180.000	10.0							

编号: 03-02-095

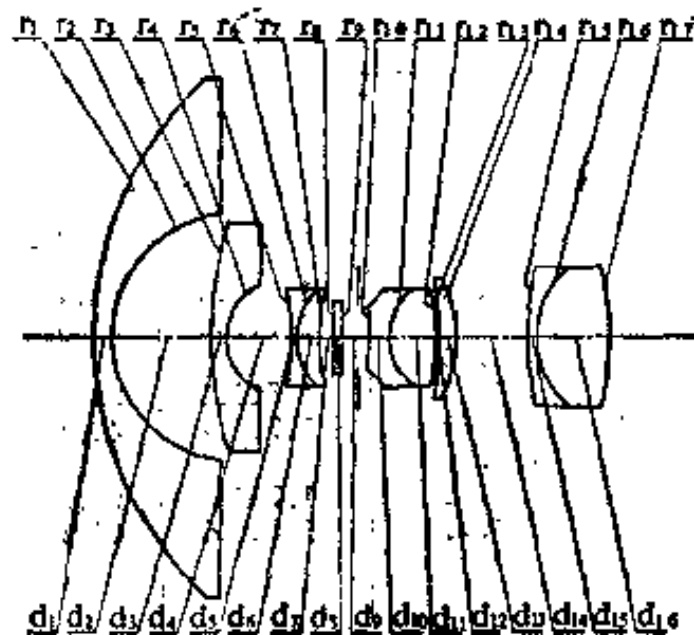
## 消色差超广角镜头

E.F.L.=10

B.F.L.=

FNo.=5.6

F.A.= $\pm 110^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	88.722	4.5	1.61272	58.6	10	-3220.849	5.6	1.78477	26.0
2	30.356	24.5			11	14.816	11.3	1.74372	45.0
3	89.627	3.9	1.62041	60.3	12	-56.365	0.2		
4	14.301	15.5			13	-305.981	4.8	1.76764	46.5
5	-66.282	1.3	1.48848	70.3	14	-28.988	17.2		
6	17.127	5.8	1.78470	26.0	15	64.417	2.6	1.78485	26.0
7	59.586	3.2			16	22.224	17.4	1.62230	53.1
8	$\infty$	1.9	1.51743	58.5	17	-69.508			
9	$\infty$	6.4							

编号: 03-02-096

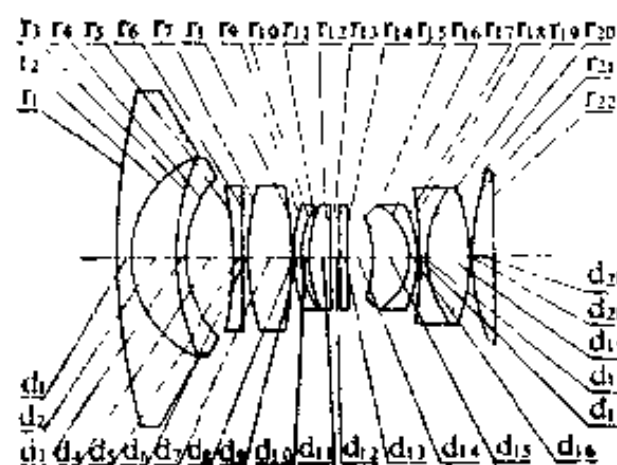
# 超 广 角 镜 头

E.F.L=1

B.F.L=2.26

FNo.=2.8

F.A.=±90°



序号	r	d	n	v	序号	r	d	n	v
1	9.8493	0.1300	1.6010	64.1	12	28.8850	0.1000		
2	1.3060	0.5307			13	∞	0.0915	1.5994	40.8
3	2.9757	0.1200	1.6700	57.1	14	∞	0.3058		
4	1.3140	0.5913			15	-1.4966	0.4331	1.6388	60.1
5	-3.1775	0.1000	1.6204	60.3	16	-0.6905	0.1000	1.7618	26.5
6	32.0620	0.0750			17	-1.2414	0.0090		
7	3.1718	0.5131	1.6676	44.9	18	-7.5358	0.0850	1.7400	37.5
8	-5.3920	0.0090			19	1.4093	0.5100	1.6230	58.1
9	2.3056	0.1000	1.6214	61.2	20	-2.0771	0.0090		
10	1.1154	0.0750			21	3.0419	0.2650	1.5168	64.2
11	1.5001	0.2739	1.7545	32.8	22	-16.3930			

编号: 03-02-097

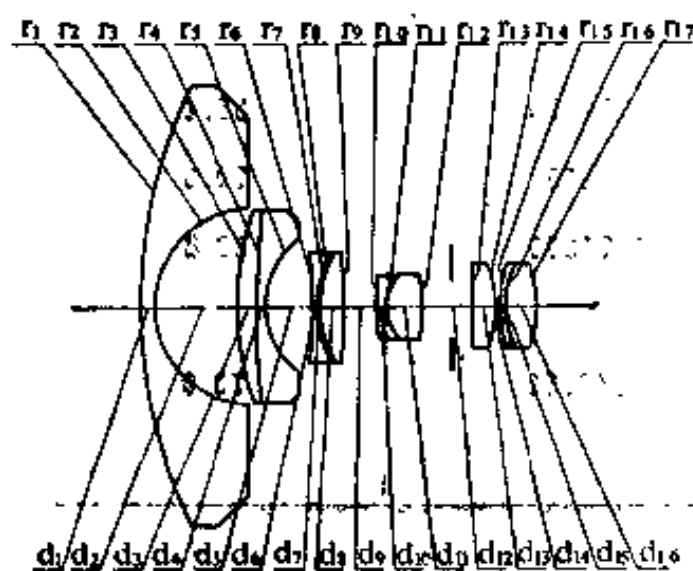
# 超 广 角 摄 影 镜 头

E.F.L=1

B.F.L=4.5616

FNo.=2.8

F.A.=±90°



序号	r	d	n	v	序号	r	d	n	v
1	12.5508	0.3406	1.5891	61.0	10	10.6177	0.2433	1.7865	50.1
2	2.3973	2.0581			11	-1.0641	0.8722	1.6034	38.0
3	6.7504	0.4841	1.7847	25.6	12	-8.5301	1.2638		
4	23.0172	0.2433	1.5891	61.0	13	-82.8154	0.5340	1.5184	60.1
5	2.0662	1.0668			14	-3.1680	0.0243		
6	-30.4548	0.1910	1.6700	57.3	15	-3.2395	0.1825	1.9225	20.9
7	2.7598	0.0255			16	1.8270	0.7992	1.5184	60.1
8	3.0080	0.5681	1.6668	33.0	17	-2.8557			
9	-40.5882	0.8687							

编号: 03-02-098

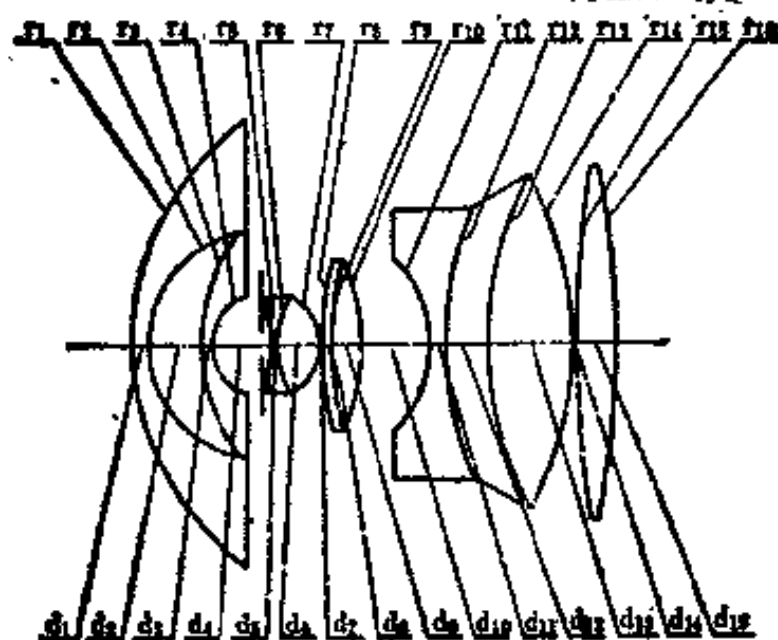
# 超 广 角 镜 头

E.F.L.=12

B.F.L.=

FNo.=10

F.A.= $\pm 135^\circ$



序 号	r	d	n <sub>D</sub>	v
1	28.81	1.50	1.53996	59.6
2	11.67	5.50		
3	18.54	0.95	1.53996	59.6
4	5.15	6.22*		
5	- 10.00	0.60	1.56732	42.8
6	10.00	4.40	1.56873	63.1
7	- 5.85	0.25		
8	43.53	1.00	1.56873	63.1
9	43.53	3.06	1.58313	59.3
10	- 22.94	7.00		
11	- 12.70	1.80	1.59270	35.4
12	37.04	4.20	1.48750	70.0
13	37.04	9.00	1.71300	53.8
14	- 37.04	0.20		
15	147.90	4.00	1.48750	70.0
16	- 120.00			

6.22\* = 5.22 + 1.00

编号: 03-02-100

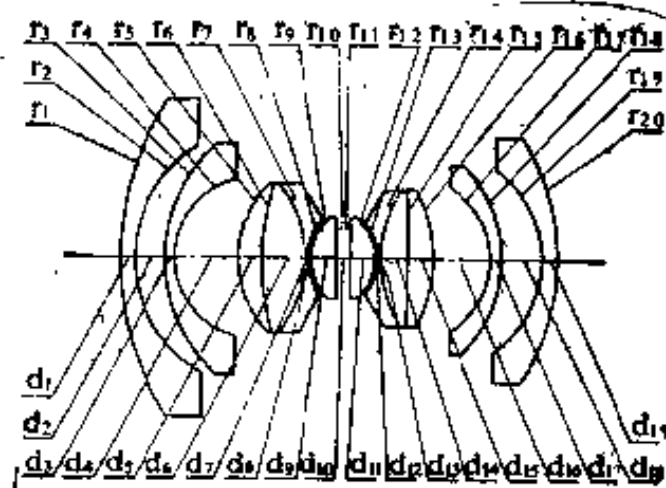
# 八片式超广角镜头

E.F.L = 1

B.F.L =

FNo. = 5.6

F.A. =  $\pm 80.5^\circ$



序号	r	d	$n_d$	v	序号	r	d	$n_d$	v
1	1.40773	0.06773	1.52088	60.2	11	9.08195	0.13175	1.56384	60.7
2	0.64601	0.15506			12	- 0.29219	0.00264		
3	0.80930	0.05644	1.61272	58.6	13	- 0.28565	0.01693	1.58215	42.0
4	0.44316	0.30661			14	0.57550	0.13957	1.65128	38.3
5	0.53348	0.11958	1.66680	33.1	15	25.53558	0.12504	1.64328	47.6
6	1.16220	0.22175	1.86755	41.9	16	- 0.66308	0.26465		
7	- 0.58504	0.01693	1.61659	36.6	17	- 0.43336	0.05193	1.72342	38.0
8	0.26232	0.00816			18	- 0.65051	0.19993		
9	0.27680	0.12996	1.55232	63.5	19	- 0.52868	0.06435	1.52944	51.8
10	- 7.50150	0.06209			20	- 1.08893			

[ 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      第三册

作者 =

页数 = 9 8

S S 号 = 0

出版日期 =

封面页  
书名页  
版权页  
前言页  
目录页  
符号说明  
广角镜头  
超广角摄影镜头  
超广角摄影镜头  
广角镜头  
超广角镜头  
超广角镜头  
反远距型广角摄影镜头  
反远距型广角摄影镜头  
广角摄影镜头  
反远距型广角照相机镜头  
反远距型广角照相机镜头  
大孔径长后截距广角镜头  
广角摄影镜头  
广角摄影镜头  
广角物镜  
大孔径长后截距广角镜头  
反远距型广角物镜  
三片式广角物镜  
三片式超广角物镜  
广角物镜  
广角物镜  
反远距型超广角照相机镜头  
反远距型广角照相机镜头  
反远距型广角镜头  
反远距型广角镜头  
反远距型广角镜头  
反远距型超广角镜头  
广角物镜  
超广角摄影物镜  
广角摄影物镜  
大孔径广角摄影物镜  
大孔径广角摄影物镜  
长后截距广角物镜  
长后截距超广角物镜  
广角摄影物镜  
超广角镜头  
超广角镜头  
大孔径超广角镜头  
大孔径超广角镜头  
反远距型广角镜头  
反远距型超广角物镜  
反远距型超广角物镜  
反远距型超广角物镜  
反远距型广角镜头  
超广角摄影物镜  
超广角摄影物镜  
具有长后截距的超广角物镜  
大孔径超广角镜头  
大孔径广角镜头  
具有长后截距的超广角物镜  
具有长后截距的小型广角物镜  
超广角摄影物镜  
八片式广角物镜  
八片式广角物镜  
广角物镜  
摄影式电影摄影用的广角物镜  
改进的对称式广角物镜  
反远距型物镜

广角摄影物镜  
 两组元超广角摄影物镜  
 小型的超广角照相机物镜  
 小型的超广角照相机物镜  
 反远距型物镜  
 反远距型物镜  
 广角物镜  
 四组元超广角照相机物镜  
 广角镜头  
 超广角镜头  
 超广角镜头  
 广角镜头  
 广角镜头  
 大孔径广角摄影物镜  
 大孔径广角摄影物镜  
 广角镜头  
 超广角镜头  
 广角物镜  
 反远距型物镜  
 大孔径摄影物镜  
 大孔径摄影物镜  
 广角物镜  
 广角物镜  
 改进的高斯型五片式摄影镜头  
 超广角镜头  
 超广角镜头  
 广角物镜  
 广角摄影物镜  
 五组元超广角物镜  
 五组元超广角物镜  
 高斯型四组元广角物镜  
 高斯型四组元广角物镜  
 摄影式电影摄影用的大孔径广角物镜  
 超广角镜头  
 超广角鱼眼镜头  
 超广角鱼眼镜头  
 消色差超广角镜头  
 超广角镜头  
 超广角摄影镜头  
 超广角镜头  
 八片式超广角镜头  
 八片式超广角镜头  
 附录页