



Focal Length 18 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	9.216	8.713	7.773	6.934	6.188	5.522	4.93

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	9.197	Infinity	8.695	Infinity	7.754	Infinity	6.916	Infinity	6.169	Infinity	5.504	Infinity	4.911	Infinity
30.00	7.068	Infinity	6.769	Infinity	6.188	Infinity	5.645	Infinity	5.14	Infinity	4.672	Infinity	4.24	Infinity
15.00	5.74	Infinity	5.542	Infinity	5.148	Infinity	4.768	Infinity	4.405	Infinity	4.058	Infinity	3.73	Infinity
10.00	4.831	Infinity	4.691	Infinity	4.407	Infinity	4.127	Infinity	3.854	Infinity	3.587	Infinity	3.329	Infinity
8.00	4.319	59.583	4.207	95.917	3.978	Infinity	3.75	Infinity	3.523	Infinity	3.3	Infinity	3.081	Infinity
7.00	4.015	28.606	3.918	34.942	3.719	68.971	3.519	Infinity	3.319	Infinity	3.121	Infinity	2.925	Infinity
6.00	3.67	16.895	3.589	18.912	3.422	25.766	3.253	43.497	3.082	192.709	2.911	Infinity	2.741	Infinity
5.00	3.276	10.74	3.212	11.516	3.078	13.728	2.941	17.509	2.802	25.374	2.66	51.319	2.518	Infinity
4.50	3.057	8.641	3.002	9.135	2.885	10.467	2.765	12.522	2.641	16.071	2.516	23.6	2.389	49.942
4.00	2.822	6.945	2.775	7.259	2.675	8.071	2.572	9.234	2.465	11.021	2.356	14.089	2.245	20.52
3.50	2.567	5.545	2.529	5.742	2.446	6.236	2.36	6.904	2.27	7.85	2.178	9.28	2.083	11.676
3.00	2.292	4.371	2.261	4.491	2.196	4.785	2.126	5.166	2.054	5.673	1.979	6.378	1.9	7.416
2.75	2.146	3.852	2.119	3.945	2.061	4.168	2	4.453	1.937	4.822	1.87	5.32	1.8	6.018
2.50	1.993	3.371	1.97	3.442	1.92	3.61	1.868	3.82	1.812	4.087	1.754	4.436	1.693	4.908
2.20	1.8	2.84	1.782	2.889	1.741	3.006	1.699	3.148	1.653	3.326	1.605	3.552	1.554	3.845
2.00	1.666	2.51	1.65	2.549	1.616	2.638	1.579	2.746	1.54	2.879	1.498	3.046	1.454	3.257
1.80	1.527	2.198	1.514	2.227	1.485	2.295	1.455	2.376	1.421	2.474	1.386	2.594	1.349	2.744
1.60	1.383	1.903	1.372	1.924	1.349	1.974	1.324	2.033	1.297	2.103	1.268	2.188	1.237	2.293
1.40	1.233	1.623	1.225	1.638	1.207	1.673	1.187	1.714	1.165	1.763	1.142	1.822	1.117	1.893
1.20	1.078	1.356	1.071	1.367	1.058	1.391	1.043	1.418	1.026	1.451	1.009	1.49	0.99	1.536
1.00	0.916	1.103	0.911	1.11	0.902	1.125	0.891	1.142	0.879	1.163	0.867	1.187	0.853	1.215
0.80	0.747	0.861	0.745	0.865	0.738	0.874	0.732	0.884	0.724	0.896	0.716	0.909	0.707	0.925
0.60	0.572	0.631	0.571	0.633	0.567	0.638	0.563	0.643	0.559	0.648	0.555	0.655	0.55	0.662
0.50	0.482	0.52	0.481	0.521	0.478	0.524	0.476	0.527	0.473	0.531	0.47	0.535	0.467	0.54
0.40	0.389	0.412	0.389	0.412	0.387	0.414	0.386	0.416	0.384	0.418	0.382	0.42	0.38	0.422
0.30	0.295	0.305	0.295	0.306	0.294	0.306	0.293	0.307	0.292	0.308	0.292	0.309	0.291	0.31
0.25	0.247	0.253	0.247	0.253	0.246	0.254	0.246	0.254	0.245	0.255	0.245	0.255	0.244	0.256
0.22	0.218	0.222	0.218	0.222	0.218	0.223	0.217	0.223	0.217	0.223	0.217	0.224	0.216	0.224



3.2	3.5	4	4.5	5	5.6	6.3	7.1
4.402	3.931	3.512	3.139	2.806	2.51	2.246	2.011

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
4.383	Infinity	3.913	Infinity	3.494	Infinity	3.12	Infinity	2.788	Infinity	2.491	Infinity	2.227	Infinity	1.992	Infinity
3.842	Infinity	3.478	Infinity	3.144	Infinity	2.84	Infinity	2.563	Infinity	2.312	Infinity	2.084	Infinity	1.877	Infinity
3.42	Infinity	3.13	Infinity	2.858	Infinity	2.606	Infinity	2.372	Infinity	2.156	Infinity	1.957	Infinity	1.775	Infinity
3.082	Infinity	2.845	Infinity	2.62	Infinity	2.407	Infinity	2.207	Infinity	2.02	Infinity	1.846	Infinity	1.683	Infinity
2.869	Infinity	2.663	Infinity	2.466	Infinity	2.277	Infinity	2.098	Infinity	1.929	Infinity	1.77	Infinity	1.621	Infinity
2.734	Infinity	2.547	Infinity	2.366	Infinity	2.193	Infinity	2.027	Infinity	1.869	Infinity	1.719	Infinity	1.579	Infinity
2.572	Infinity	2.407	Infinity	2.246	Infinity	2.089	Infinity	1.938	Infinity	1.794	Infinity	1.656	Infinity	1.526	Infinity
2.376	Infinity	2.235	Infinity	2.096	Infinity	1.96	Infinity	1.827	Infinity	1.699	Infinity	1.575	Infinity	1.457	Infinity
2.261	Infinity	2.133	Infinity	2.007	Infinity	1.882	Infinity	1.76	Infinity	1.641	Infinity	1.526	Infinity	1.415	Infinity
2.132	42.232	2.018	Infinity	1.905	Infinity	1.793	Infinity	1.682	Infinity	1.573	Infinity	1.468	Infinity	1.366	Infinity
1.986	16.464	1.888	30.602	1.789	956.736	1.69	Infinity	1.592	Infinity	1.495	Infinity	1.4	Infinity	1.307	Infinity
1.82	9.079	1.738	12.149	1.654	19.634	1.57	64.342	1.485	Infinity	1.401	Infinity	1.318	Infinity	1.236	Infinity
1.728	7.063	1.654	8.78	1.579	12.096	1.502	21.068	1.425	129.313	1.348	Infinity	1.271	Infinity	1.195	Infinity
1.629	5.577	1.564	6.588	1.497	8.281	1.428	11.659	1.358	21.606	1.288	590.291	1.218	Infinity	1.149	Infinity
1.501	4.239	1.445	4.794	1.388	5.622	1.33	6.983	1.27	9.606	1.209	16.687	1.147	99.915	1.086	Infinity
1.408	3.533	1.36	3.907	1.309	4.435	1.257	5.234	1.204	6.568	1.149	9.222	1.094	16.973	1.039	344.416
1.309	2.936	1.268	3.187	1.224	3.526	1.179	4.007	1.132	4.737	1.084	5.962	1.036	8.427	0.986	15.822
1.204	2.424	1.169	2.59	1.132	2.807	1.094	3.099	1.054	3.513	1.013	4.136	0.97	5.172	0.927	7.218
1.09	1.98	1.062	2.087	1.032	2.224	1.001	2.401	0.968	2.637	0.933	2.968	0.898	3.457	0.861	4.249
0.969	1.591	0.947	1.658	0.924	1.742	0.899	1.846	0.873	1.98	0.845	2.156	0.817	2.397	0.787	2.745
0.838	1.248	0.822	1.288	0.805	1.336	0.787	1.395	0.767	1.468	0.746	1.559	0.724	1.678	0.702	1.836
0.697	0.944	0.686	0.965	0.675	0.991	0.662	1.021	0.649	1.058	0.635	1.102	0.62	1.158	0.603	1.227
0.544	0.671	0.538	0.681	0.531	0.692	0.524	0.706	0.517	0.722	0.508	0.741	0.499	0.764	0.489	0.791
0.463	0.545	0.459	0.551	0.454	0.558	0.449	0.567	0.444	0.576	0.438	0.587	0.432	0.601	0.425	0.616
0.378	0.425	0.375	0.429	0.373	0.433	0.37	0.437	0.366	0.442	0.363	0.448	0.359	0.455	0.354	0.463
0.289	0.312	0.288	0.313	0.287	0.315	0.285	0.317	0.284	0.319	0.282	0.322	0.28	0.325	0.278	0.328
0.244	0.257	0.243	0.258	0.242	0.259	0.241	0.26	0.24	0.261	0.239	0.263	0.238	0.264	0.236	0.266
0.216	0.225	0.215	0.225	0.215	0.226	0.214	0.227	0.213	0.227	0.212	0.228	0.212	0.23	0.211	0.231



8	9	10	11	13	14	16	18
1.801	1.615	1.448	1.3	1.168	1.05	0.946	0.852

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
1.783	Infinity	1.596	Infinity	1.43	Infinity	1.282	Infinity	1.15	Infinity	1.032	Infinity	0.927	Infinity	0.834	Infinity
1.691	Infinity	1.523	Infinity	1.372	Infinity	1.235	Infinity	1.113	Infinity	1.003	Infinity	0.904	Infinity	0.815	Infinity
1.608	Infinity	1.456	Infinity	1.318	Infinity	1.192	Infinity	1.078	Infinity	0.975	Infinity	0.882	Infinity	0.798	Infinity
1.534	Infinity	1.395	Infinity	1.268	Infinity	1.152	Infinity	1.046	Infinity	0.949	Infinity	0.861	Infinity	0.781	Infinity
1.482	Infinity	1.353	Infinity	1.233	Infinity	1.124	Infinity	1.023	Infinity	0.93	Infinity	0.845	Infinity	0.768	Infinity
1.447	Infinity	1.324	Infinity	1.21	Infinity	1.104	Infinity	1.007	Infinity	0.917	Infinity	0.835	Infinity	0.76	Infinity
1.403	Infinity	1.287	Infinity	1.179	Infinity	1.079	Infinity	0.986	Infinity	0.9	Infinity	0.821	Infinity	0.749	Infinity
1.345	Infinity	1.239	Infinity	1.139	Infinity	1.046	Infinity	0.959	Infinity	0.878	Infinity	0.803	Infinity	0.734	Infinity
1.31	Infinity	1.209	Infinity	1.114	Infinity	1.025	Infinity	0.941	Infinity	0.864	Infinity	0.791	Infinity	0.724	Infinity
1.267	Infinity	1.174	Infinity	1.084	Infinity	1	Infinity	0.921	Infinity	0.846	Infinity	0.777	Infinity	0.713	Infinity
1.217	Infinity	1.131	Infinity	1.048	Infinity	0.97	Infinity	0.895	Infinity	0.825	Infinity	0.759	Infinity	0.698	Infinity
1.156	Infinity	1.078	Infinity	1.003	Infinity	0.932	Infinity	0.863	Infinity	0.798	Infinity	0.737	Infinity	0.679	Infinity
1.12	Infinity	1.047	Infinity	0.977	Infinity	0.909	Infinity	0.844	Infinity	0.782	Infinity	0.723	Infinity	0.668	Infinity
1.08	Infinity	1.013	Infinity	0.947	Infinity	0.883	Infinity	0.822	Infinity	0.764	Infinity	0.708	Infinity	0.655	Infinity
1.025	Infinity	0.964	Infinity	0.905	Infinity	0.847	Infinity	0.791	Infinity	0.737	Infinity	0.686	Infinity	0.636	Infinity
0.983	Infinity	0.928	Infinity	0.873	Infinity	0.82	Infinity	0.767	Infinity	0.717	Infinity	0.668	Infinity	0.622	Infinity
0.936	2430.011	0.886	Infinity	0.837	Infinity	0.788	Infinity	0.74	Infinity	0.693	Infinity	0.648	Infinity	0.605	Infinity
0.884	13.068	0.839	160.305	0.795	Infinity	0.752	Infinity	0.708	Infinity	0.666	Infinity	0.624	Infinity	0.584	Infinity
0.824	5.737	0.786	9.51	0.748	37.475	0.709	Infinity	0.671	Infinity	0.634	Infinity	0.596	Infinity	0.56	Infinity
0.756	3.283	0.725	4.221	0.693	6.245	0.66	13.715	0.628	Infinity	0.595	Infinity	0.563	Infinity	0.531	Infinity
0.678	2.054	0.653	2.374	0.628	2.884	0.602	3.815	0.575	6.026	0.548	17.737	0.522	Infinity	0.495	Infinity
0.586	1.316	0.569	1.435	0.55	1.598	0.531	1.834	0.511	2.205	0.49	2.864	0.47	4.348	0.449	10.675
0.479	0.824	0.468	0.865	0.456	0.918	0.443	0.985	0.43	1.074	0.417	1.198	0.403	1.379	0.388	1.667
0.417	0.635	0.409	0.658	0.401	0.685	0.392	0.719	0.382	0.763	0.372	0.819	0.361	0.894	0.35	0.998
0.35	0.473	0.345	0.484	0.339	0.497	0.333	0.513	0.327	0.532	0.32	0.556	0.313	0.586	0.305	0.625
0.275	0.332	0.272	0.336	0.269	0.342	0.266	0.348	0.263	0.355	0.259	0.364	0.255	0.374	0.251	0.387
0.235	0.268	0.233	0.271	0.231	0.274	0.229	0.277	0.227	0.281	0.225	0.286	0.222	0.291	0.219	0.297
0.21	0.232	0.208	0.234	0.207	0.236	0.206	0.238	0.204	0.24	0.202	0.243	0.2	0.247	0.198	0.25



20	22
0.769	0.695

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
0.751	Infinity	0.677	Infinity
0.736	Infinity	0.665	Infinity
0.722	Infinity	0.654	Infinity
0.708	Infinity	0.643	Infinity
0.698	Infinity	0.635	Infinity
0.692	Infinity	0.629	Infinity
0.683	Infinity	0.622	Infinity
0.67	Infinity	0.612	Infinity
0.663	Infinity	0.606	Infinity
0.653	Infinity	0.598	Infinity
0.641	Infinity	0.588	Infinity
0.626	Infinity	0.576	Infinity
0.616	Infinity	0.568	Infinity
0.605	Infinity	0.559	Infinity
0.59	Infinity	0.546	Infinity
0.577	Infinity	0.536	Infinity
0.563	Infinity	0.523	Infinity
0.546	Infinity	0.509	Infinity
0.525	Infinity	0.491	Infinity
0.5	Infinity	0.47	Infinity
0.468	Infinity	0.442	Infinity
0.428	Infinity	0.407	Infinity
0.373	2.192	0.358	3.432
0.339	1.152	0.327	1.4
0.297	0.676	0.289	0.745
0.246	0.402	0.241	0.421
0.216	0.305	0.213	0.314
0.196	0.255	0.194	0.261



Focal Length 21 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	12.477	11.794	10.516	9.378	8.363	7.46	6.655

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	12.455	Infinity	11.772	Infinity	10.495	Infinity	9.356	Infinity	8.342	Infinity	7.438	Infinity	6.633	Infinity
30.00	8.83	Infinity	8.483	Infinity	7.802	Infinity	7.157	Infinity	6.551	Infinity	5.983	Infinity	5.453	Infinity
15.00	6.839	Infinity	6.63	Infinity	6.208	Infinity	5.795	Infinity	5.393	Infinity	5.003	Infinity	4.629	Infinity
10.00	5.581	49.814	5.442	64.959	5.156	201.015	4.869	Infinity	4.583	Infinity	4.3	Infinity	4.021	Infinity
8.00	4.904	22.047	4.797	24.574	4.574	32.992	4.347	53.646	4.119	181.061	3.889	Infinity	3.661	Infinity
7.00	4.514	15.769	4.422	17.018	4.233	20.658	4.038	27.199	3.841	42.226	3.641	111.467	3.441	Infinity
6.00	4.08	11.43	4.006	12.069	3.85	13.787	3.689	16.411	3.524	20.88	3.356	30.091	3.185	59.716
5.00	3.596	8.251	3.539	8.577	3.417	9.406	3.29	10.552	3.159	12.227	3.024	14.882	2.885	19.689
4.50	3.333	6.96	3.283	7.191	3.179	7.762	3.069	8.524	2.955	9.58	2.837	11.131	2.715	13.608
4.00	3.053	5.822	3.012	5.982	2.924	6.37	2.831	6.872	2.734	7.54	2.633	8.464	2.528	9.818
3.50	2.756	4.811	2.723	4.919	2.651	5.177	2.575	5.502	2.495	5.919	2.41	6.471	2.323	7.23
3.00	2.439	3.906	2.413	3.976	2.357	4.142	2.297	4.346	2.234	4.601	2.166	4.925	2.096	5.349
2.75	2.273	3.488	2.251	3.544	2.202	3.675	2.15	3.834	2.094	4.03	2.035	4.275	1.973	4.59
2.50	2.101	3.092	2.082	3.135	2.041	3.237	1.996	3.359	1.948	3.507	1.897	3.691	1.843	3.921
2.20	1.887	2.642	1.872	2.673	1.839	2.746	1.803	2.832	1.764	2.936	1.722	3.063	1.678	3.219
2.00	1.74	2.356	1.727	2.38	1.698	2.437	1.668	2.505	1.635	2.585	1.599	2.682	1.561	2.8
1.80	1.588	2.08	1.577	2.099	1.554	2.143	1.528	2.195	1.501	2.256	1.471	2.329	1.439	2.417
1.60	1.432	1.815	1.423	1.83	1.404	1.863	1.384	1.901	1.361	1.946	1.337	2	1.311	2.063
1.40	1.271	1.56	1.264	1.57	1.25	1.594	1.233	1.622	1.216	1.654	1.197	1.692	1.176	1.737
1.20	1.106	1.313	1.1	1.321	1.089	1.337	1.077	1.356	1.064	1.378	1.05	1.404	1.034	1.434
1.00	0.935	1.075	0.932	1.08	0.924	1.091	0.915	1.103	0.906	1.117	0.896	1.134	0.885	1.153
0.80	0.759	0.846	0.757	0.848	0.752	0.855	0.747	0.862	0.741	0.87	0.734	0.88	0.727	0.891
0.60	0.578	0.624	0.577	0.625	0.574	0.628	0.571	0.632	0.568	0.636	0.564	0.641	0.56	0.646
0.50	0.486	0.515	0.485	0.516	0.483	0.518	0.481	0.521	0.479	0.524	0.476	0.527	0.474	0.53
0.40	0.391	0.409	0.391	0.41	0.39	0.411	0.389	0.412	0.387	0.414	0.386	0.415	0.384	0.417
0.30	0.296	0.304	0.296	0.305	0.295	0.305	0.294	0.306	0.294	0.307	0.293	0.307	0.292	0.308



3.2	3.5	4	4.5	5	5.6	6.3	7.1
5.937	5.298	4.729	4.222	3.77	3.368	3.009	2.69

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
5.916	Infinity	5.277	Infinity	4.708	Infinity	4.2	Infinity	3.749	Infinity	3.346	Infinity	2.987	Infinity	2.668	Infinity
4.961	Infinity	4.505	Infinity	4.085	Infinity	3.7	Infinity	3.346	Infinity	3.023	Infinity	2.728	Infinity	2.46	Infinity
4.271	Infinity	3.93	Infinity	3.608	Infinity	3.305	Infinity	3.021	Infinity	2.757	Infinity	2.511	Infinity	2.283	Infinity
3.75	Infinity	3.486	Infinity	3.231	Infinity	2.987	Infinity	2.754	Infinity	2.533	Infinity	2.325	Infinity	2.129	Infinity
3.435	Infinity	3.213	Infinity	2.996	Infinity	2.786	Infinity	2.583	Infinity	2.388	Infinity	2.203	Infinity	2.027	Infinity
3.241	Infinity	3.043	Infinity	2.848	Infinity	2.658	Infinity	2.473	Infinity	2.294	Infinity	2.123	Infinity	1.96	Infinity
3.014	Infinity	2.842	Infinity	2.672	Infinity	2.505	Infinity	2.34	Infinity	2.18	Infinity	2.025	Infinity	1.877	Infinity
2.744	30.928	2.602	86.44	2.46	Infinity	2.317	Infinity	2.177	Infinity	2.038	Infinity	1.903	Infinity	1.771	Infinity
2.59	18.153	2.464	29.08	2.336	90.132	2.207	Infinity	2.08	Infinity	1.953	Infinity	1.829	Infinity	1.708	Infinity
2.42	11.972	2.31	15.895	2.197	25.182	2.084	73.566	1.97	Infinity	1.857	Infinity	1.744	Infinity	1.634	Infinity
2.232	8.327	2.138	10.042	2.042	13.072	1.944	19.795	1.845	47.044	1.746	Infinity	1.646	Infinity	1.548	Infinity
2.022	5.923	1.945	6.735	1.866	7.965	1.784	10.026	1.701	14.147	1.617	26.351	1.532	951.28	1.447	Infinity
1.908	5.003	1.839	5.569	1.768	6.379	1.695	7.63	1.62	9.791	1.544	14.379	1.467	30.477	1.389	Infinity
1.786	4.218	1.727	4.61	1.664	5.149	1.6	5.929	1.533	7.149	1.465	9.306	1.396	14.101	1.326	33.652
1.631	3.414	1.582	3.664	1.53	3.994	1.475	4.444	1.419	5.09	1.361	6.086	1.301	7.808	1.24	11.468
1.521	2.946	1.478	3.129	1.433	3.365	1.385	3.676	1.336	4.104	1.284	4.724	1.232	5.692	1.177	7.402
1.405	2.523	1.369	2.656	1.33	2.822	1.289	3.036	1.247	3.319	1.202	3.709	1.156	4.276	1.108	5.165
1.283	2.14	1.253	2.233	1.22	2.348	1.186	2.493	1.151	2.679	1.113	2.924	1.074	3.261	1.033	3.749
1.153	1.79	1.129	1.854	1.104	1.931	1.076	2.027	1.047	2.146	1.016	2.299	0.984	2.499	0.95	2.772
1.017	1.47	0.998	1.512	0.979	1.562	0.957	1.623	0.934	1.697	0.91	1.789	0.885	1.906	0.857	2.057
0.872	1.175	0.859	1.201	0.845	1.232	0.829	1.268	0.812	1.312	0.794	1.365	0.775	1.431	0.755	1.512
0.719	0.904	0.71	0.918	0.701	0.936	0.69	0.956	0.679	0.979	0.667	1.008	0.654	1.041	0.64	1.082
0.556	0.653	0.551	0.66	0.546	0.668	0.54	0.678	0.533	0.689	0.526	0.701	0.519	0.717	0.51	0.734
0.471	0.534	0.467	0.539	0.464	0.544	0.459	0.55	0.455	0.557	0.45	0.564	0.445	0.574	0.439	0.584
0.382	0.42	0.38	0.422	0.378	0.425	0.376	0.428	0.373	0.432	0.37	0.437	0.366	0.442	0.363	0.448
0.291	0.309	0.29	0.311	0.289	0.312	0.288	0.313	0.286	0.315	0.285	0.317	0.283	0.32	0.281	0.322



8	9	10	11	13	14	16	18
2.405	2.151	1.925	1.724	1.545	1.385	1.243	1.116

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
2.383	Infinity	2.13	Infinity	1.904	Infinity	1.703	Infinity	1.523	Infinity	1.364	Infinity	1.221	Infinity	1.094	Infinity
2.217	Infinity	1.997	Infinity	1.798	Infinity	1.618	Infinity	1.456	Infinity	1.31	Infinity	1.179	Infinity	1.061	Infinity
2.073	Infinity	1.88	Infinity	1.703	Infinity	1.542	Infinity	1.394	Infinity	1.26	Infinity	1.139	Infinity	1.029	Infinity
1.946	Infinity	1.776	Infinity	1.618	Infinity	1.472	Infinity	1.338	Infinity	1.214	Infinity	1.102	Infinity	0.999	Infinity
1.861	Infinity	1.705	Infinity	1.559	Infinity	1.424	Infinity	1.298	Infinity	1.182	Infinity	1.075	Infinity	0.977	Infinity
1.804	Infinity	1.658	Infinity	1.52	Infinity	1.391	Infinity	1.271	Infinity	1.16	Infinity	1.057	Infinity	0.963	Infinity
1.734	Infinity	1.599	Infinity	1.471	Infinity	1.35	Infinity	1.237	Infinity	1.132	Infinity	1.034	Infinity	0.944	Infinity
1.645	Infinity	1.523	Infinity	1.407	Infinity	1.296	Infinity	1.192	Infinity	1.095	Infinity	1.003	Infinity	0.918	Infinity
1.59	Infinity	1.476	Infinity	1.367	Infinity	1.263	Infinity	1.164	Infinity	1.071	Infinity	0.984	Infinity	0.902	Infinity
1.526	Infinity	1.421	Infinity	1.32	Infinity	1.223	Infinity	1.131	Infinity	1.043	Infinity	0.96	Infinity	0.883	Infinity
1.452	Infinity	1.357	Infinity	1.265	Infinity	1.176	Infinity	1.091	Infinity	1.009	Infinity	0.932	Infinity	0.859	Infinity
1.363	Infinity	1.279	Infinity	1.198	Infinity	1.118	Infinity	1.041	Infinity	0.967	Infinity	0.896	Infinity	0.829	Infinity
1.312	Infinity	1.235	Infinity	1.159	Infinity	1.085	Infinity	1.012	Infinity	0.942	Infinity	0.875	Infinity	0.811	Infinity
1.255	Infinity	1.185	Infinity	1.115	Infinity	1.047	Infinity	0.979	Infinity	0.914	Infinity	0.851	Infinity	0.791	Infinity
1.179	24.34	1.117	Infinity	1.055	Infinity	0.994	Infinity	0.934	Infinity	0.875	Infinity	0.817	Infinity	0.762	Infinity
1.122	11.2	1.066	26.613	1.01	Infinity	0.954	Infinity	0.899	Infinity	0.844	Infinity	0.791	Infinity	0.739	Infinity
1.06	6.748	1.01	10.319	0.96	25.661	0.91	Infinity	0.86	Infinity	0.81	Infinity	0.761	Infinity	0.713	Infinity
0.991	4.508	0.948	5.846	0.904	8.794	0.86	20.454	0.815	Infinity	0.771	Infinity	0.727	Infinity	0.684	Infinity
0.914	3.16	0.878	3.755	0.841	4.767	0.803	6.857	0.764	13.612	0.726	Infinity	0.687	Infinity	0.649	Infinity
0.829	2.26	0.8	2.542	0.769	2.96	0.738	3.636	0.706	4.903	0.673	8.098	0.64	31.034	0.607	Infinity
0.733	1.616	0.711	1.751	0.687	1.935	0.662	2.194	0.637	2.588	0.611	3.246	0.584	4.562	0.557	8.456
0.625	1.132	0.609	1.194	0.592	1.274	0.574	1.377	0.556	1.515	0.537	1.711	0.517	2.004	0.496	2.486
0.501	0.756	0.492	0.781	0.481	0.812	0.47	0.85	0.458	0.897	0.446	0.958	0.433	1.037	0.419	1.144
0.433	0.597	0.426	0.612	0.418	0.63	0.41	0.651	0.402	0.677	0.393	0.709	0.383	0.749	0.373	0.8
0.359	0.454	0.354	0.462	0.35	0.471	0.345	0.482	0.339	0.495	0.333	0.51	0.327	0.529	0.32	0.552
0.279	0.325	0.277	0.329	0.274	0.333	0.272	0.337	0.269	0.342	0.265	0.349	0.262	0.356	0.258	0.365



20	22
1.003	0.902

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
0.981	Infinity	0.881	Infinity
0.955	Infinity	0.859	Infinity
0.929	Infinity	0.839	Infinity
0.905	Infinity	0.82	Infinity
0.888	Infinity	0.806	Infinity
0.876	Infinity	0.796	Infinity
0.86	Infinity	0.783	Infinity
0.839	Infinity	0.766	Infinity
0.826	Infinity	0.755	Infinity
0.81	Infinity	0.742	Infinity
0.79	Infinity	0.726	Infinity
0.765	Infinity	0.705	Infinity
0.75	Infinity	0.693	Infinity
0.733	Infinity	0.678	Infinity
0.708	Infinity	0.657	Infinity
0.689	Infinity	0.641	Infinity
0.667	Infinity	0.622	Infinity
0.641	Infinity	0.6	Infinity
0.611	Infinity	0.574	Infinity
0.575	Infinity	0.542	Infinity
0.53	283.884	0.503	Infinity
0.475	3.425	0.454	6.003
0.405	1.297	0.391	1.529
0.362	0.867	0.351	0.959
0.312	0.581	0.305	0.617
0.254	0.375	0.249	0.388



Focal Length 24 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	15.81	14.944	13.322	11.878	10.591	9.444	8.422

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	15.785	Infinity	14.919	Infinity	13.298	Infinity	11.853	Infinity	10.566	Infinity	9.42	Infinity	8.398	Infinity
30.00	10.374	Infinity	9.995	Infinity	9.243	Infinity	8.524	Infinity	7.84	Infinity	7.194	Infinity	6.585	Infinity
15.00	7.726	290.269	7.514	Infinity	7.083	Infinity	6.655	Infinity	6.233	Infinity	5.819	Infinity	5.415	Infinity
10.00	6.154	26.977	6.02	29.95	5.741	39.688	5.458	62.53	5.172	177.011	4.885	Infinity	4.599	Infinity
8.00	5.34	16.055	5.239	17.059	5.027	19.819	4.809	24.223	4.587	32.283	4.36	51.566	4.131	156.926
7.00	4.879	12.453	4.794	13.048	4.617	14.599	4.433	16.85	4.243	20.381	4.049	26.658	3.852	40.777
6.00	4.375	9.586	4.307	9.934	4.164	10.805	4.014	11.986	3.859	13.664	3.698	16.215	3.533	20.523
5.00	3.822	7.25	3.771	7.446	3.661	7.922	3.545	8.536	3.424	9.35	3.297	10.472	3.166	12.106
4.50	3.525	6.236	3.482	6.38	3.388	6.726	3.289	7.162	3.185	7.724	3.075	8.472	2.961	9.506
4.00	3.213	5.309	3.177	5.412	3.099	5.658	3.017	5.962	2.929	6.345	2.836	6.839	2.739	7.495
3.50	2.885	4.456	2.856	4.529	2.793	4.699	2.726	4.905	2.655	5.161	2.579	5.481	2.499	5.892
3.00	2.539	3.671	2.517	3.719	2.468	3.832	2.416	3.968	2.36	4.132	2.3	4.333	2.237	4.585
2.75	2.359	3.301	2.34	3.34	2.298	3.43	2.253	3.538	2.204	3.667	2.152	3.824	2.097	4.017
2.50	2.174	2.944	2.158	2.975	2.123	3.046	2.084	3.13	2.043	3.231	1.998	3.351	1.951	3.498
2.20	1.945	2.534	1.933	2.556	1.904	2.608	1.874	2.669	1.84	2.741	1.804	2.827	1.766	2.93
2.00	1.789	2.27	1.778	2.288	1.754	2.329	1.728	2.378	1.7	2.434	1.669	2.501	1.636	2.581
1.80	1.628	2.014	1.619	2.028	1.6	2.06	1.578	2.097	1.555	2.141	1.53	2.192	1.502	2.253
1.60	1.464	1.765	1.457	1.776	1.441	1.8	1.424	1.828	1.405	1.861	1.385	1.899	1.362	1.944
1.40	1.296	1.523	1.29	1.531	1.278	1.549	1.265	1.569	1.25	1.593	1.234	1.62	1.217	1.652
1.20	1.124	1.288	1.12	1.293	1.111	1.306	1.101	1.32	1.09	1.336	1.078	1.355	1.065	1.377
1.00	0.948	1.059	0.945	1.062	0.939	1.07	0.932	1.08	0.924	1.09	0.916	1.103	0.906	1.117
0.80	0.767	0.836	0.766	0.838	0.762	0.843	0.757	0.848	0.752	0.855	0.747	0.862	0.741	0.87
0.60	0.583	0.619	0.582	0.62	0.579	0.622	0.577	0.625	0.574	0.628	0.571	0.632	0.568	0.636
0.50	0.488	0.512	0.488	0.513	0.486	0.515	0.485	0.516	0.483	0.518	0.481	0.521	0.479	0.523
0.40	0.393	0.407	0.393	0.408	0.392	0.408	0.391	0.41	0.39	0.411	0.389	0.412	0.387	0.414
0.30	0.297	0.303	0.296	0.304	0.296	0.304	0.296	0.305	0.295	0.305	0.294	0.306	0.294	0.307



3.2	3.5	4	4.5	5	5.6	6.3	7.1
7.512	6.702	5.979	5.336	4.762	4.252	3.797	3.391

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
7.488	Infinity	6.677	Infinity	5.955	Infinity	5.311	Infinity	4.738	Infinity	4.227	Infinity	3.772	Infinity	3.367	Infinity
6.014	Infinity	5.482	Infinity	4.988	Infinity	4.53	Infinity	4.108	Infinity	3.72	Infinity	3.364	Infinity	3.039	Infinity
5.025	Infinity	4.65	Infinity	4.291	Infinity	3.949	Infinity	3.626	Infinity	3.321	Infinity	3.036	Infinity	2.77	Infinity
4.315	Infinity	4.037	Infinity	3.764	Infinity	3.5	Infinity	3.245	Infinity	3	Infinity	2.766	Infinity	2.545	Infinity
3.902	Infinity	3.674	Infinity	3.447	Infinity	3.225	Infinity	3.008	Infinity	2.797	Infinity	2.593	Infinity	2.398	Infinity
3.652	100.778	3.452	Infinity	3.252	Infinity	3.054	Infinity	2.859	Infinity	2.668	Infinity	2.482	Infinity	2.303	Infinity
3.365	29.263	3.194	56.15	3.023	Infinity	2.852	Infinity	2.681	Infinity	2.513	Infinity	2.349	Infinity	2.188	Infinity
3.031	14.68	2.893	19.292	2.752	29.835	2.61	77.449	2.467	Infinity	2.325	Infinity	2.184	Infinity	2.045	Infinity
2.843	11.019	2.721	13.42	2.597	17.776	2.47	27.999	2.342	79.352	2.214	Infinity	2.086	Infinity	1.96	Infinity
2.638	8.4	2.534	9.721	2.426	11.809	2.315	15.572	2.203	24.274	2.09	65.435	1.976	Infinity	1.862	Infinity
2.415	6.435	2.327	7.178	2.236	8.249	2.143	9.914	2.047	12.827	1.949	19.166	1.85	43.206	1.75	Infinity
2.17	4.904	2.099	5.321	2.025	5.884	1.949	6.679	1.869	7.876	1.788	9.866	1.705	13.788	1.621	24.969
2.038	4.26	1.976	4.569	1.911	4.976	1.843	5.531	1.772	6.323	1.699	7.538	1.624	9.62	1.548	13.964
1.9	3.679	1.846	3.907	1.789	4.199	1.73	4.585	1.667	5.113	1.603	5.875	1.536	7.059	1.468	9.134
1.724	3.055	1.68	3.209	1.633	3.402	1.584	3.649	1.532	3.973	1.478	4.414	1.421	5.045	1.363	6.014
1.601	2.677	1.563	2.793	1.523	2.937	1.48	3.118	1.435	3.35	1.388	3.657	1.338	4.076	1.287	4.681
1.472	2.325	1.441	2.412	1.406	2.517	1.37	2.648	1.332	2.812	1.291	3.023	1.248	3.301	1.204	3.684
1.338	1.997	1.312	2.06	1.284	2.135	1.254	2.228	1.222	2.342	1.188	2.484	1.152	2.668	1.114	2.909
1.197	1.69	1.177	1.734	1.154	1.787	1.13	1.85	1.105	1.927	1.077	2.022	1.048	2.14	1.017	2.29
1.05	1.403	1.035	1.433	1.018	1.468	0.999	1.509	0.979	1.559	0.958	1.619	0.935	1.693	0.911	1.784
0.896	1.133	0.885	1.152	0.873	1.174	0.86	1.2	0.845	1.231	0.83	1.267	0.813	1.31	0.795	1.363
0.734	0.88	0.727	0.891	0.719	0.903	0.71	0.918	0.701	0.935	0.691	0.955	0.679	0.978	0.667	1.006
0.565	0.641	0.56	0.646	0.556	0.652	0.551	0.66	0.546	0.668	0.54	0.677	0.533	0.688	0.526	0.701
0.476	0.527	0.474	0.53	0.471	0.534	0.467	0.538	0.464	0.544	0.459	0.55	0.455	0.556	0.45	0.564
0.386	0.415	0.384	0.417	0.382	0.42	0.38	0.422	0.378	0.425	0.376	0.428	0.373	0.432	0.37	0.437
0.293	0.307	0.292	0.308	0.291	0.309	0.29	0.311	0.289	0.312	0.288	0.314	0.286	0.315	0.285	0.317



8	9	10	11	13	14	16	18
3.03	2.708	2.422	2.166	1.939	1.736	1.555	1.394

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
3.006	Infinity	2.684	Infinity	2.397	Infinity	2.142	Infinity	1.914	Infinity	1.712	Infinity	1.531	Infinity	1.37	Infinity
2.743	Infinity	2.474	Infinity	2.229	Infinity	2.008	Infinity	1.807	Infinity	1.626	Infinity	1.463	Infinity	1.316	Infinity
2.523	Infinity	2.294	Infinity	2.083	Infinity	1.889	Infinity	1.711	Infinity	1.549	Infinity	1.401	Infinity	1.266	Infinity
2.335	Infinity	2.139	Infinity	1.955	Infinity	1.784	Infinity	1.625	Infinity	1.478	Infinity	1.343	Infinity	1.219	Infinity
2.212	Infinity	2.035	Infinity	1.869	Infinity	1.712	Infinity	1.566	Infinity	1.43	Infinity	1.303	Infinity	1.187	Infinity
2.132	Infinity	1.967	Infinity	1.812	Infinity	1.665	Infinity	1.526	Infinity	1.397	Infinity	1.276	Infinity	1.164	Infinity
2.033	Infinity	1.884	Infinity	1.741	Infinity	1.605	Infinity	1.476	Infinity	1.355	Infinity	1.242	Infinity	1.136	Infinity
1.909	Infinity	1.778	Infinity	1.65	Infinity	1.528	Infinity	1.412	Infinity	1.301	Infinity	1.197	Infinity	1.098	Infinity
1.835	Infinity	1.713	Infinity	1.595	Infinity	1.481	Infinity	1.372	Infinity	1.267	Infinity	1.168	Infinity	1.075	Infinity
1.75	Infinity	1.639	Infinity	1.531	Infinity	1.426	Infinity	1.325	Infinity	1.227	Infinity	1.135	Infinity	1.046	Infinity
1.651	Infinity	1.553	Infinity	1.456	Infinity	1.361	Infinity	1.269	Infinity	1.18	Infinity	1.094	Infinity	1.012	Infinity
1.536	289.701	1.451	Infinity	1.366	Infinity	1.283	Infinity	1.201	Infinity	1.122	Infinity	1.044	Infinity	0.97	Infinity
1.47	28.43	1.393	Infinity	1.315	Infinity	1.238	Infinity	1.162	Infinity	1.087	Infinity	1.015	Infinity	0.945	Infinity
1.399	13.654	1.329	30.892	1.258	Infinity	1.188	Infinity	1.118	Infinity	1.049	Infinity	0.982	Infinity	0.916	Infinity
1.304	7.673	1.243	11.139	1.181	22.704	1.12	Infinity	1.058	Infinity	0.996	Infinity	0.936	Infinity	0.877	Infinity
1.234	5.622	1.18	7.267	1.124	10.849	1.069	24.448	1.012	Infinity	0.956	Infinity	0.901	Infinity	0.846	Infinity
1.158	4.237	1.11	5.101	1.062	6.623	1.012	9.986	0.962	23.421	0.912	Infinity	0.861	Infinity	0.812	Infinity
1.075	3.24	1.034	3.716	0.992	4.454	0.949	5.742	0.906	8.525	0.861	18.85	0.817	Infinity	0.772	Infinity
0.985	2.487	0.951	2.755	0.916	3.135	0.879	3.713	0.842	4.691	0.804	6.676	0.766	12.809	0.727	Infinity
0.885	1.899	0.858	2.049	0.83	2.248	0.801	2.525	0.77	2.933	0.739	3.588	0.707	4.802	0.674	7.781
0.776	1.427	0.755	1.508	0.734	1.61	0.711	1.744	0.688	1.924	0.663	2.179	0.638	2.562	0.612	3.199
0.654	1.04	0.64	1.08	0.625	1.13	0.609	1.191	0.592	1.27	0.575	1.371	0.556	1.508	0.537	1.7
0.519	0.716	0.51	0.734	0.501	0.755	0.492	0.78	0.481	0.811	0.47	0.848	0.458	0.895	0.446	0.955
0.445	0.573	0.439	0.584	0.433	0.597	0.426	0.612	0.418	0.629	0.41	0.65	0.402	0.676	0.393	0.708
0.366	0.442	0.363	0.448	0.359	0.454	0.354	0.462	0.35	0.471	0.344	0.482	0.339	0.495	0.333	0.51
0.283	0.32	0.281	0.322	0.279	0.325	0.277	0.329	0.274	0.333	0.272	0.337	0.268	0.343	0.265	0.349



20	22
1.251	1.123

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
1.227	Infinity	1.099	Infinity
1.184	Infinity	1.065	Infinity
1.143	Infinity	1.033	Infinity
1.106	Infinity	1.002	Infinity
1.079	Infinity	0.981	Infinity
1.061	Infinity	0.966	Infinity
1.038	Infinity	0.947	Infinity
1.007	Infinity	0.921	Infinity
0.987	Infinity	0.905	Infinity
0.963	Infinity	0.885	Infinity
0.935	Infinity	0.861	Infinity
0.899	Infinity	0.831	Infinity
0.878	Infinity	0.813	Infinity
0.853	Infinity	0.792	Infinity
0.819	Infinity	0.763	Infinity
0.793	Infinity	0.741	Infinity
0.763	Infinity	0.715	Infinity
0.728	Infinity	0.685	Infinity
0.688	Infinity	0.65	Infinity
0.641	26.222	0.608	Infinity
0.585	4.453	0.558	8.025
0.517	1.985	0.496	2.453
0.433	1.033	0.419	1.139
0.383	0.748	0.373	0.798
0.326	0.529	0.319	0.552
0.262	0.356	0.258	0.365



Focal Length 28 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	21.408	20.234	18.035	16.076	14.33	12.775	11.39

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	21.379	Infinity	20.205	Infinity	18.006	Infinity	16.047	Infinity	14.302	Infinity	12.747	Infinity	11.362	Infinity
30.00	12.515	Infinity	12.104	Infinity	11.283	Infinity	10.484	Infinity	9.713	Infinity	8.973	Infinity	8.266	Infinity
15.00	8.846	49.812	8.64	57.623	8.215	88.508	7.785	222.38	7.353	Infinity	6.923	Infinity	6.496	Infinity
10.00	6.841	18.654	6.718	19.647	6.459	22.287	6.191	26.249	5.916	32.798	5.635	45.57	5.351	81.016
8.00	5.847	12.697	5.757	13.148	5.566	14.276	5.367	15.799	5.16	17.949	4.946	21.188	4.726	26.577
7.00	5.297	10.339	5.223	10.635	5.066	11.36	4.901	12.301	4.728	13.563	4.548	15.33	4.362	17.958
6.00	4.707	8.287	4.649	8.475	4.524	8.928	4.392	9.497	4.253	10.23	4.108	11.2	3.955	12.537
5.00	4.072	6.485	4.028	6.599	3.935	6.869	3.835	7.2	3.729	7.611	3.617	8.133	3.499	8.813
4.50	3.736	5.664	3.699	5.751	3.621	5.954	3.536	6.2	3.446	6.502	3.351	6.878	3.249	7.356
4.00	3.387	4.89	3.357	4.954	3.292	5.104	3.222	5.283	3.148	5.5	3.068	5.765	2.983	6.096
3.50	3.023	4.159	2.999	4.205	2.948	4.312	2.892	4.439	2.832	4.59	2.768	4.773	2.699	4.996
3.00	2.645	3.468	2.626	3.5	2.587	3.573	2.544	3.659	2.498	3.761	2.448	3.882	2.394	4.027
2.75	2.449	3.137	2.434	3.163	2.4	3.222	2.364	3.291	2.324	3.373	2.281	3.47	2.234	3.585
2.50	2.25	2.814	2.237	2.835	2.209	2.882	2.178	2.937	2.144	3.002	2.108	3.077	2.068	3.167
2.20	2.005	2.438	1.995	2.453	1.973	2.488	1.948	2.529	1.921	2.576	1.892	2.631	1.86	2.696
2.00	1.839	2.193	1.83	2.206	1.811	2.234	1.791	2.266	1.768	2.304	1.744	2.348	1.717	2.399
1.80	1.669	1.954	1.662	1.963	1.647	1.986	1.63	2.011	1.611	2.04	1.591	2.075	1.569	2.114
1.60	1.497	1.719	1.491	1.727	1.479	1.744	1.465	1.763	1.45	1.785	1.434	1.811	1.416	1.841
1.40	1.321	1.489	1.317	1.495	1.307	1.507	1.297	1.522	1.285	1.538	1.273	1.557	1.259	1.579
1.20	1.143	1.264	1.139	1.268	1.132	1.277	1.125	1.287	1.116	1.298	1.107	1.311	1.096	1.327
1.00	0.961	1.043	0.958	1.046	0.954	1.051	0.948	1.058	0.942	1.066	0.936	1.074	0.928	1.084
0.80	0.775	0.826	0.774	0.828	0.771	0.831	0.768	0.835	0.764	0.84	0.76	0.845	0.755	0.851
0.60	0.587	0.614	0.586	0.615	0.584	0.616	0.583	0.619	0.581	0.621	0.578	0.624	0.576	0.627
0.50	0.491	0.509	0.491	0.51	0.49	0.511	0.488	0.512	0.487	0.514	0.486	0.515	0.484	0.517
0.40	0.395	0.405	0.394	0.406	0.394	0.406	0.393	0.407	0.392	0.408	0.391	0.409	0.39	0.41
0.35	0.346	0.354	0.346	0.354	0.346	0.355	0.345	0.355	0.344	0.356	0.344	0.357	0.343	0.357



3.2	3.5	4	4.5	5	5.6	6.3	7.1
10.156	9.056	8.077	7.204	6.427	5.734	5.117	4.567

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
10.128	Infinity	9.028	Infinity	8.049	Infinity	7.176	Infinity	6.398	Infinity	5.706	Infinity	5.089	Infinity	4.539	Infinity
7.596	Infinity	6.963	Infinity	6.367	Infinity	5.811	Infinity	5.292	Infinity	4.811	Infinity	4.367	Infinity	3.957	Infinity
6.077	Infinity	5.666	Infinity	5.267	Infinity	4.882	Infinity	4.512	Infinity	4.159	Infinity	3.824	Infinity	3.507	Infinity
5.064	642.855	4.777	Infinity	4.491	Infinity	4.209	Infinity	3.932	Infinity	3.663	Infinity	3.401	Infinity	3.149	Infinity
4.501	37.211	4.273	67.612	4.044	826.474	3.815	Infinity	3.587	Infinity	3.362	Infinity	3.141	Infinity	2.926	Infinity
4.17	22.243	3.974	30.393	3.776	51.67	3.575	242.508	3.375	Infinity	3.175	Infinity	2.978	Infinity	2.784	Infinity
3.798	14.478	3.635	17.528	3.469	22.965	3.3	35.259	3.128	88.556	2.957	Infinity	2.785	Infinity	2.616	Infinity
3.376	9.725	3.247	11.006	3.114	12.918	2.978	16.053	2.838	22.076	2.697	38.186	2.554	213.083	2.411	Infinity
3.143	7.979	3.032	8.819	2.916	10.001	2.796	11.776	2.673	14.713	2.547	20.444	2.42	36.388	2.292	296.737
2.893	6.517	2.799	7.064	2.7	7.8	2.598	8.835	2.492	10.384	2.383	12.933	2.271	17.868	2.158	31.306
2.625	5.274	2.548	5.625	2.466	6.079	2.381	6.687	2.292	7.534	2.2	8.784	2.105	10.801	2.008	14.561
2.337	4.205	2.276	4.423	2.211	4.698	2.142	5.05	2.07	5.515	1.995	6.153	1.917	7.071	1.837	8.5
2.184	3.724	2.131	3.894	2.074	4.104	2.014	4.37	1.95	4.712	1.884	5.168	1.814	5.798	1.743	6.72
2.025	3.275	1.98	3.405	1.931	3.564	1.879	3.761	1.823	4.011	1.765	4.335	1.705	4.767	1.641	5.37
1.826	2.773	1.789	2.865	1.749	2.976	1.707	3.112	1.661	3.279	1.613	3.491	1.563	3.764	1.51	4.127
1.688	2.46	1.656	2.531	1.622	2.617	1.586	2.72	1.547	2.847	1.505	3.004	1.462	3.202	1.415	3.46
1.545	2.161	1.518	2.215	1.49	2.28	1.459	2.358	1.427	2.451	1.392	2.566	1.354	2.708	1.315	2.889
1.397	1.876	1.375	1.916	1.352	1.964	1.327	2.021	1.3	2.089	1.271	2.171	1.24	2.271	1.208	2.395
1.243	1.604	1.227	1.633	1.209	1.667	1.189	1.707	1.167	1.755	1.144	1.812	1.119	1.88	1.093	1.963
1.085	1.344	1.072	1.364	1.059	1.388	1.044	1.415	1.027	1.447	1.01	1.485	0.991	1.529	0.97	1.583
0.92	1.096	0.912	1.109	0.902	1.124	0.891	1.141	0.88	1.161	0.867	1.185	0.853	1.213	0.838	1.246
0.75	0.858	0.744	0.866	0.738	0.874	0.731	0.885	0.723	0.896	0.715	0.91	0.706	0.925	0.696	0.944
0.573	0.63	0.57	0.634	0.566	0.638	0.562	0.643	0.558	0.649	0.554	0.656	0.548	0.664	0.543	0.672
0.482	0.52	0.48	0.522	0.477	0.525	0.475	0.528	0.472	0.532	0.469	0.536	0.465	0.541	0.461	0.547
0.389	0.412	0.388	0.413	0.386	0.415	0.385	0.417	0.383	0.419	0.381	0.421	0.379	0.424	0.377	0.427
0.342	0.358	0.341	0.359	0.34	0.361	0.339	0.362	0.338	0.363	0.336	0.365	0.335	0.367	0.333	0.369



8	9	10	11	13	14	16	18
4.078	3.641	3.252	2.906	2.598	2.323	2.078	1.86

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
4.049	Infinity	3.613	Infinity	3.224	Infinity	2.878	Infinity	2.569	Infinity	2.294	Infinity	2.05	Infinity	1.831	Infinity
3.581	Infinity	3.237	Infinity	2.922	Infinity	2.636	Infinity	2.376	Infinity	2.14	Infinity	1.926	Infinity	1.733	Infinity
3.21	Infinity	2.932	Infinity	2.672	Infinity	2.432	Infinity	2.209	Infinity	2.005	Infinity	1.817	Infinity	1.644	Infinity
2.908	Infinity	2.679	Infinity	2.462	Infinity	2.257	Infinity	2.065	Infinity	1.886	Infinity	1.719	Infinity	1.565	Infinity
2.717	Infinity	2.516	Infinity	2.324	Infinity	2.141	Infinity	1.968	Infinity	1.805	Infinity	1.652	Infinity	1.51	Infinity
2.595	Infinity	2.412	Infinity	2.235	Infinity	2.066	Infinity	1.905	Infinity	1.752	Infinity	1.608	Infinity	1.473	Infinity
2.448	Infinity	2.285	Infinity	2.126	Infinity	1.973	Infinity	1.826	Infinity	1.685	Infinity	1.552	Infinity	1.426	Infinity
2.269	Infinity	2.129	Infinity	1.991	Infinity	1.856	Infinity	1.726	Infinity	1.6	Infinity	1.48	Infinity	1.365	Infinity
2.163	Infinity	2.036	Infinity	1.91	Infinity	1.786	Infinity	1.665	Infinity	1.548	Infinity	1.436	Infinity	1.328	Infinity
2.044	203.734	1.93	Infinity	1.817	Infinity	1.705	Infinity	1.595	Infinity	1.488	Infinity	1.384	Infinity	1.284	Infinity
1.909	23.941	1.81	87.096	1.71	Infinity	1.611	Infinity	1.513	Infinity	1.417	Infinity	1.322	Infinity	1.231	Infinity
1.755	10.999	1.671	16.443	1.586	37.139	1.501	Infinity	1.416	Infinity	1.332	Infinity	1.249	Infinity	1.167	Infinity
1.669	8.184	1.593	10.845	1.516	17.107	1.438	48.945	1.36	Infinity	1.283	Infinity	1.206	Infinity	1.13	Infinity
1.576	6.261	1.509	7.699	1.44	10.385	1.37	17.109	1.299	63.277	1.228	Infinity	1.158	Infinity	1.088	Infinity
1.455	4.63	1.397	5.365	1.339	6.535	1.278	8.66	1.217	13.673	1.155	39.365	1.093	Infinity	1.031	Infinity
1.367	3.804	1.317	4.284	1.265	4.992	1.211	6.136	1.156	8.271	1.1	13.612	1.044	50.129	0.988	Infinity
1.273	3.123	1.23	3.437	1.185	3.875	1.138	4.524	1.09	5.578	1.04	7.564	0.99	12.645	0.94	52.276
1.173	2.552	1.136	2.756	1.098	3.028	1.058	3.406	1.016	3.965	0.974	4.864	0.93	6.536	0.886	10.684
1.065	2.067	1.035	2.196	1.003	2.363	0.97	2.585	0.935	2.89	0.9	3.334	0.863	4.033	0.825	5.282
0.948	1.648	0.925	1.729	0.9	1.829	0.873	1.956	0.846	2.123	0.817	2.349	0.787	2.67	0.756	3.156
0.822	1.285	0.805	1.332	0.786	1.389	0.766	1.459	0.745	1.548	0.723	1.662	0.7	1.813	0.676	2.019
0.685	0.965	0.674	0.991	0.661	1.021	0.647	1.057	0.633	1.101	0.617	1.156	0.601	1.224	0.584	1.311
0.537	0.683	0.53	0.694	0.522	0.708	0.514	0.724	0.506	0.744	0.496	0.767	0.486	0.794	0.475	0.828
0.457	0.553	0.452	0.56	0.447	0.569	0.442	0.579	0.435	0.591	0.429	0.604	0.422	0.62	0.414	0.64
0.374	0.431	0.371	0.435	0.368	0.439	0.364	0.445	0.36	0.451	0.356	0.459	0.351	0.467	0.346	0.477
0.331	0.372	0.329	0.375	0.326	0.378	0.324	0.382	0.321	0.386	0.318	0.391	0.314	0.397	0.31	0.404



20	22
1.665	1.492

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
1.637	Infinity	1.464	Infinity
1.559	Infinity	1.401	Infinity
1.487	Infinity	1.344	Infinity
1.422	Infinity	1.291	Infinity
1.377	Infinity	1.254	Infinity
1.346	Infinity	1.229	Infinity
1.308	Infinity	1.197	Infinity
1.257	Infinity	1.155	Infinity
1.225	Infinity	1.128	Infinity
1.188	Infinity	1.097	Infinity
1.143	Infinity	1.059	Infinity
1.088	Infinity	1.012	Infinity
1.056	Infinity	0.984	Infinity
1.02	Infinity	0.953	Infinity
0.97	Infinity	0.91	Infinity
0.932	Infinity	0.877	Infinity
0.889	Infinity	0.839	Infinity
0.841	37.707	0.796	Infinity
0.787	8.126	0.748	20.762
0.724	3.973	0.691	5.616
0.651	2.316	0.625	2.78
0.566	1.426	0.546	1.582
0.464	0.869	0.452	0.922
0.405	0.663	0.397	0.691
0.341	0.489	0.335	0.503
0.306	0.412	0.302	0.421



Focal Length 35 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	33.74	31.887	28.417	25.325	22.571	20.118	17.932

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	33.703	Infinity	31.85	Infinity	28.381	Infinity	25.289	Infinity	22.535	Infinity	20.082	Infinity	17.896	Infinity
30.00	15.904	269.615	15.481	504.962	14.616	Infinity	13.754	Infinity	12.9	Infinity	12.06	Infinity	11.239	Infinity
15.00	10.408	26.904	10.225	28.21	9.842	31.627	9.445	36.605	9.036	44.464	8.618	58.59	8.192	91.092
10.00	7.734	14.159	7.634	14.511	7.419	15.36	7.192	16.442	6.954	17.853	6.704	19.757	6.445	22.447
8.00	6.485	10.447	6.415	10.637	6.263	11.085	6.101	11.635	5.929	12.322	5.747	13.197	5.556	14.341
7.00	5.814	8.799	5.758	8.933	5.635	9.246	5.504	9.625	5.364	10.089	5.215	10.667	5.058	11.401
6.00	5.11	7.27	5.066	7.361	4.971	7.572	4.869	7.823	4.76	8.126	4.642	8.496	4.518	8.953
5.00	4.368	5.848	4.337	5.906	4.267	6.04	4.192	6.199	4.111	6.387	4.024	6.612	3.93	6.884
4.50	3.983	5.173	3.957	5.218	3.899	5.323	3.837	5.445	3.769	5.589	3.695	5.76	3.616	5.965
4.00	3.588	4.521	3.566	4.556	3.52	4.634	3.469	4.726	3.413	4.834	3.353	4.961	3.288	5.112
3.50	3.182	3.89	3.165	3.916	3.128	3.974	3.088	4.041	3.044	4.119	2.997	4.21	2.945	4.318
3.00	2.764	3.28	2.752	3.298	2.724	3.339	2.694	3.386	2.661	3.44	2.624	3.504	2.585	3.577
2.75	2.551	2.983	2.541	2.998	2.517	3.031	2.492	3.07	2.463	3.114	2.432	3.165	2.398	3.225
2.50	2.336	2.69	2.327	2.702	2.307	2.729	2.285	2.76	2.262	2.796	2.236	2.837	2.207	2.885
2.20	2.072	2.345	2.066	2.354	2.05	2.374	2.033	2.397	2.015	2.424	1.994	2.455	1.972	2.49
2.00	1.895	2.118	1.889	2.125	1.876	2.142	1.862	2.161	1.846	2.182	1.829	2.207	1.81	2.235
1.80	1.715	1.894	1.71	1.9	1.7	1.913	1.688	1.928	1.676	1.945	1.661	1.964	1.646	1.987
1.60	1.533	1.673	1.529	1.678	1.521	1.688	1.512	1.699	1.502	1.712	1.491	1.727	1.478	1.744
1.40	1.349	1.455	1.346	1.459	1.34	1.466	1.333	1.475	1.325	1.484	1.316	1.495	1.307	1.508
1.20	1.163	1.24	1.161	1.242	1.156	1.247	1.151	1.253	1.145	1.26	1.139	1.268	1.132	1.277
1.00	0.975	1.027	0.973	1.028	0.97	1.032	0.967	1.036	0.963	1.041	0.958	1.046	0.953	1.052
0.80	0.784	0.816	0.783	0.817	0.781	0.82	0.779	0.822	0.777	0.825	0.774	0.828	0.771	0.832
0.60	0.592	0.609	0.591	0.609	0.59	0.61	0.589	0.612	0.588	0.613	0.586	0.615	0.584	0.617
0.50	0.494	0.506	0.494	0.506	0.493	0.507	0.493	0.508	0.492	0.509	0.491	0.51	0.49	0.511
0.40	0.397	0.403	0.396	0.404	0.396	0.404	0.396	0.405	0.395	0.405	0.394	0.406	0.394	0.406
0.36	0.357	0.363	0.357	0.363	0.357	0.363	0.357	0.363	0.356	0.364	0.356	0.364	0.355	0.365



3.2	3.5	4	4.5	5	5.6	6.3	7.1
15.984	14.249	12.704	11.327	10.1	9.007	8.033	7.166

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
15.949	Infinity	14.214	Infinity	12.668	Infinity	11.291	Infinity	10.064	Infinity	8.971	Infinity	7.997	Infinity	7.13	Infinity
10.442	Infinity	9.672	Infinity	8.934	Infinity	8.229	Infinity	7.56	Infinity	6.929	Infinity	6.336	Infinity	5.781	Infinity
7.762	241.638	7.33	Infinity	6.9	Infinity	6.473	Infinity	6.054	Infinity	5.644	Infinity	5.245	Infinity	4.861	Infinity
6.177	26.497	5.901	33.233	5.62	46.515	5.335	84.419	5.048	999.623	4.761	Infinity	4.475	Infinity	4.193	Infinity
5.356	15.888	5.148	18.078	4.934	21.389	4.714	26.932	4.489	37.993	4.261	70.554	4.031	1912.917	3.802	Infinity
4.892	12.355	4.718	13.636	4.538	15.434	4.351	18.119	4.159	22.52	3.964	30.972	3.765	53.568	3.564	297.555
4.385	9.529	4.246	10.271	4.1	11.256	3.947	12.615	3.789	14.594	3.626	17.719	3.46	23.331	3.29	36.23
3.83	7.218	3.723	7.634	3.611	8.163	3.493	8.851	3.369	9.777	3.24	11.081	3.107	13.033	2.97	16.25
3.532	6.213	3.441	6.518	3.345	6.899	3.244	7.382	3.137	8.014	3.025	8.866	2.909	10.069	2.789	11.882
3.218	5.293	3.143	5.511	3.063	5.78	2.978	6.114	2.888	6.54	2.794	7.094	2.695	7.841	2.592	8.894
2.889	4.446	2.829	4.598	2.764	4.783	2.695	5.008	2.621	5.289	2.544	5.644	2.462	6.104	2.376	6.721
2.542	3.664	2.496	3.766	2.445	3.888	2.391	4.035	2.334	4.214	2.272	4.435	2.207	4.713	2.138	5.069
2.362	3.295	2.322	3.377	2.278	3.475	2.231	3.591	2.181	3.732	2.128	3.903	2.071	4.115	2.01	4.384
2.176	2.94	2.142	3.005	2.105	3.082	2.066	3.172	2.023	3.281	1.977	3.412	1.928	3.572	1.876	3.772
1.947	2.531	1.92	2.579	1.891	2.634	1.859	2.7	1.824	2.777	1.787	2.87	1.747	2.982	1.704	3.119
1.79	2.268	1.767	2.306	1.742	2.35	1.715	2.402	1.686	2.463	1.654	2.535	1.62	2.621	1.584	2.725
1.629	2.012	1.61	2.042	1.59	2.076	1.568	2.116	1.543	2.163	1.517	2.218	1.488	2.283	1.458	2.362
1.465	1.764	1.45	1.786	1.433	1.812	1.415	1.843	1.396	1.878	1.374	1.918	1.351	1.967	1.326	2.024
1.296	1.522	1.285	1.539	1.272	1.558	1.258	1.58	1.243	1.605	1.226	1.635	1.207	1.669	1.188	1.71
1.124	1.287	1.116	1.299	1.106	1.312	1.096	1.327	1.084	1.345	1.072	1.365	1.058	1.389	1.043	1.416
0.948	1.058	0.942	1.066	0.935	1.075	0.928	1.085	0.92	1.096	0.911	1.109	0.901	1.125	0.891	1.142
0.767	0.836	0.764	0.84	0.759	0.845	0.755	0.851	0.75	0.858	0.744	0.866	0.738	0.875	0.731	0.885
0.583	0.619	0.58	0.621	0.578	0.624	0.576	0.627	0.573	0.63	0.57	0.634	0.566	0.639	0.562	0.644
0.488	0.512	0.487	0.514	0.485	0.516	0.484	0.518	0.482	0.52	0.48	0.522	0.477	0.525	0.475	0.528
0.393	0.407	0.392	0.408	0.391	0.409	0.39	0.41	0.389	0.412	0.388	0.413	0.386	0.415	0.385	0.417
0.355	0.366	0.354	0.366	0.353	0.367	0.352	0.368	0.352	0.369	0.351	0.37	0.349	0.371	0.348	0.373



8	9	10	11	13	14	16	18
6.393	5.704	5.091	4.544	4.057	3.624	3.237	2.893

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
6.357	Infinity	5.669	Infinity	5.055	Infinity	4.509	Infinity	4.022	Infinity	3.588	Infinity	3.202	Infinity	2.857	Infinity
5.264	Infinity	4.785	Infinity	4.342	Infinity	3.934	Infinity	3.56	Infinity	3.217	Infinity	2.904	Infinity	2.619	Infinity
4.492	Infinity	4.139	Infinity	3.805	Infinity	3.489	Infinity	3.193	Infinity	2.915	Infinity	2.657	Infinity	2.417	Infinity
3.917	Infinity	3.647	Infinity	3.386	Infinity	3.135	Infinity	2.894	Infinity	2.666	Infinity	2.449	Infinity	2.244	Infinity
3.574	Infinity	3.349	Infinity	3.128	Infinity	2.913	Infinity	2.705	Infinity	2.504	Infinity	2.313	Infinity	2.13	Infinity
3.364	Infinity	3.164	Infinity	2.967	Infinity	2.773	Infinity	2.584	Infinity	2.401	Infinity	2.224	Infinity	2.055	Infinity
3.119	95.72	2.947	Infinity	2.775	Infinity	2.606	Infinity	2.439	Infinity	2.275	Infinity	2.117	Infinity	1.964	Infinity
2.83	22.493	2.689	39.597	2.546	273.361	2.403	Infinity	2.261	Infinity	2.12	Infinity	1.982	Infinity	1.848	Infinity
2.666	14.896	2.54	20.841	2.413	37.807	2.284	448.68	2.156	Infinity	2.028	Infinity	1.902	Infinity	1.778	Infinity
2.486	10.474	2.376	13.09	2.265	18.202	2.152	32.461	2.038	273.71	1.923	Infinity	1.81	Infinity	1.698	Infinity
2.287	7.581	2.194	8.856	2.099	10.921	2.002	14.805	1.903	24.678	1.804	98.943	1.704	Infinity	1.605	Infinity
2.066	5.541	1.991	6.187	1.913	7.123	1.832	8.581	1.75	11.151	1.666	16.82	1.581	39.328	1.496	Infinity
1.947	4.73	1.88	5.192	1.81	5.832	1.738	6.771	1.664	8.268	1.588	11.007	1.511	17.555	1.433	53.196
1.82	4.024	1.762	4.352	1.701	4.79	1.638	5.402	1.572	6.31	1.504	7.78	1.435	10.548	1.365	17.598
1.659	3.288	1.611	3.502	1.56	3.778	1.507	4.146	1.451	4.656	1.394	5.404	1.335	6.598	1.275	8.783
1.545	2.853	1.503	3.012	1.459	3.213	1.413	3.473	1.364	3.821	1.314	4.308	1.261	5.029	1.208	6.197
1.425	2.456	1.39	2.572	1.352	2.716	1.312	2.898	1.271	3.135	1.227	3.452	1.182	3.896	1.135	4.557
1.299	2.092	1.27	2.175	1.239	2.276	1.206	2.401	1.171	2.56	1.134	2.766	1.095	3.041	1.055	3.424
1.166	1.757	1.143	1.815	1.118	1.883	1.091	1.968	1.063	2.071	1.033	2.202	1.001	2.371	0.968	2.595
1.026	1.448	1.009	1.486	0.989	1.532	0.969	1.586	0.947	1.651	0.923	1.732	0.898	1.833	0.872	1.962
0.879	1.162	0.866	1.186	0.852	1.214	0.837	1.247	0.821	1.286	0.804	1.334	0.785	1.391	0.765	1.463
0.723	0.897	0.715	0.91	0.705	0.926	0.696	0.945	0.685	0.966	0.673	0.992	0.66	1.022	0.647	1.059
0.558	0.65	0.553	0.656	0.548	0.664	0.542	0.673	0.536	0.683	0.529	0.695	0.522	0.709	0.514	0.725
0.472	0.532	0.469	0.536	0.465	0.541	0.461	0.547	0.457	0.553	0.452	0.561	0.447	0.569	0.441	0.579
0.383	0.419	0.381	0.421	0.379	0.424	0.376	0.427	0.374	0.431	0.371	0.435	0.368	0.44	0.364	0.445
0.347	0.374	0.345	0.376	0.343	0.378	0.342	0.381	0.339	0.384	0.337	0.387	0.335	0.39	0.332	0.394



20	22
2.586	2.313

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
2.551	Infinity	2.278	Infinity
2.36	Infinity	2.125	Infinity
2.196	Infinity	1.992	Infinity
2.053	Infinity	1.874	Infinity
1.958	Infinity	1.795	Infinity
1.895	Infinity	1.742	Infinity
1.817	Infinity	1.676	Infinity
1.718	Infinity	1.592	Infinity
1.658	Infinity	1.541	Infinity
1.588	Infinity	1.481	Infinity
1.507	Infinity	1.41	Infinity
1.41	Infinity	1.326	Infinity
1.355	Infinity	1.278	Infinity
1.295	71.255	1.224	Infinity
1.213	14.009	1.151	42.551
1.153	8.392	1.097	13.971
1.086	5.632	1.037	7.673
1.014	3.992	0.971	4.908
0.933	2.904	0.897	3.354
0.844	2.131	0.815	2.359
0.744	1.552	0.722	1.667
0.632	1.103	0.616	1.158
0.505	0.744	0.496	0.767
0.435	0.591	0.428	0.605
0.36	0.451	0.356	0.459
0.329	0.399	0.325	0.405



Focal Length 50 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	70.676	66.79	59.515	53.034	47.26	42.115	37.532

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	70.619	Infinity	66.734	Infinity	59.46	Infinity	52.98	Infinity	47.206	Infinity	42.062	Infinity	37.48	Infinity
30.00	21.091	52.004	20.732	54.328	19.977	60.324	19.193	68.857	18.383	81.856	17.551	103.875	16.704	148.822
15.00	12.396	18.997	12.272	19.296	12.005	19.999	11.719	20.85	11.413	21.898	11.089	23.206	10.747	24.875
10.00	8.778	11.621	8.716	11.732	8.581	11.986	8.434	12.285	8.276	12.639	8.105	13.062	7.921	13.572
8.00	7.201	9	7.16	9.066	7.069	9.217	6.969	9.392	6.861	9.596	6.744	9.837	6.617	10.122
7.00	6.382	7.751	6.35	7.8	6.278	7.911	6.2	8.039	6.115	8.188	6.022	8.362	5.92	8.567
6.00	5.542	6.541	5.518	6.576	5.464	6.654	5.405	6.744	5.34	6.849	5.269	6.969	5.192	7.11
5.00	4.68	5.368	4.662	5.391	4.624	5.443	4.582	5.503	4.535	5.572	4.484	5.651	4.429	5.743
4.50	4.24	4.795	4.226	4.813	4.194	4.855	4.16	4.902	4.121	4.956	4.08	5.019	4.033	5.091
4.00	3.794	4.23	3.783	4.244	3.758	4.276	3.73	4.313	3.699	4.355	3.666	4.403	3.629	4.458
3.50	3.342	3.674	3.333	3.684	3.314	3.708	3.293	3.736	3.269	3.767	3.243	3.802	3.214	3.843
3.00	2.884	3.126	2.878	3.133	2.863	3.151	2.848	3.17	2.83	3.192	2.811	3.218	2.789	3.246
2.75	2.653	2.855	2.647	2.861	2.635	2.875	2.622	2.891	2.607	2.91	2.591	2.931	2.572	2.954
2.50	2.42	2.586	2.415	2.591	2.405	2.602	2.394	2.616	2.382	2.631	2.368	2.647	2.353	2.667
2.20	2.138	2.265	2.135	2.269	2.127	2.278	2.119	2.288	2.109	2.299	2.098	2.312	2.087	2.327
2.00	1.949	2.054	1.946	2.057	1.94	2.064	1.933	2.072	1.925	2.081	1.916	2.092	1.907	2.103
1.80	1.759	1.843	1.757	1.845	1.752	1.851	1.746	1.858	1.74	1.865	1.733	1.873	1.725	1.882
1.60	1.568	1.633	1.566	1.635	1.562	1.64	1.558	1.645	1.553	1.65	1.547	1.657	1.541	1.664
1.40	1.376	1.425	1.374	1.427	1.371	1.43	1.368	1.434	1.364	1.438	1.36	1.443	1.355	1.448
1.20	1.183	1.218	1.182	1.219	1.179	1.221	1.177	1.224	1.174	1.227	1.171	1.23	1.168	1.234
1.00	0.988	1.012	0.988	1.013	0.986	1.014	0.984	1.016	0.983	1.018	0.98	1.02	0.978	1.023
0.80	0.793	0.807	0.792	0.808	0.791	0.809	0.79	0.81	0.789	0.811	0.788	0.812	0.787	0.814
0.60	0.596	0.604	0.596	0.604	0.596	0.605	0.595	0.605	0.594	0.606	0.594	0.606	0.593	0.607
0.55	0.547	0.553	0.547	0.553	0.546	0.554	0.546	0.554	0.545	0.555	0.545	0.555	0.544	0.556
0.50	0.498	0.502	0.497	0.503	0.497	0.503	0.497	0.503	0.496	0.504	0.496	0.504	0.495	0.505



3.2	3.5	4	4.5	5	5.6	6.3	7.1
33.45	29.812	26.571	23.684	21.112	18.821	16.779	14.96

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
33.397	Infinity	29.76	Infinity	26.519	Infinity	23.632	Infinity	21.06	Infinity	18.769	Infinity	16.727	Infinity	14.909	Infinity
15.845	289.465	14.981	Infinity	14.118	Infinity	13.26	Infinity	12.414	Infinity	11.585	Infinity	10.778	Infinity	9.996	Infinity
10.387	27.061	10.01	30.023	9.619	34.23	9.215	40.623	8.801	51.406	8.378	73.241	7.95	140.071	7.519	Infinity
7.725	14.194	7.516	14.964	7.295	15.935	7.061	17.187	6.817	18.85	6.562	21.15	6.297	24.507	6.025	29.826
6.48	10.463	6.333	10.874	6.176	11.375	6.008	11.996	5.831	12.78	5.644	13.792	5.448	15.139	5.244	17.005
5.811	8.809	5.693	9.097	5.566	9.445	5.43	9.868	5.285	10.39	5.131	11.048	4.969	11.892	4.8	13.01
5.108	7.275	5.016	7.47	4.918	7.702	4.812	7.98	4.698	8.317	4.577	8.731	4.448	9.248	4.312	9.907
4.368	5.85	4.301	5.974	4.229	6.121	4.151	6.294	4.066	6.5	3.976	6.749	3.879	7.052	3.775	7.427
3.983	5.174	3.928	5.271	3.868	5.384	3.802	5.517	3.732	5.674	3.656	5.862	3.574	6.089	3.486	6.365
3.588	4.521	3.543	4.594	3.495	4.68	3.441	4.779	3.384	4.897	3.321	5.035	3.254	5.201	3.181	5.4
3.182	3.89	3.147	3.944	3.109	4.006	3.067	4.078	3.021	4.163	2.972	4.262	2.918	4.379	2.86	4.519
2.765	3.279	2.739	3.317	2.71	3.361	2.679	3.411	2.644	3.47	2.606	3.538	2.565	3.617	2.52	3.711
2.552	2.982	2.53	3.013	2.506	3.049	2.479	3.09	2.449	3.137	2.417	3.193	2.382	3.257	2.343	3.332
2.337	2.689	2.318	2.714	2.298	2.743	2.275	2.776	2.25	2.814	2.223	2.858	2.194	2.909	2.161	2.969
2.074	2.343	2.059	2.362	2.043	2.384	2.025	2.409	2.006	2.437	1.985	2.47	1.961	2.507	1.936	2.551
1.896	2.117	1.884	2.132	1.87	2.15	1.856	2.169	1.84	2.192	1.822	2.218	1.802	2.249	1.781	2.283
1.716	1.893	1.706	1.905	1.695	1.919	1.683	1.935	1.67	1.953	1.656	1.973	1.639	1.997	1.622	2.024
1.534	1.672	1.526	1.682	1.518	1.692	1.508	1.704	1.498	1.718	1.486	1.734	1.473	1.752	1.459	1.772
1.35	1.454	1.344	1.461	1.338	1.469	1.33	1.478	1.322	1.488	1.313	1.5	1.303	1.513	1.293	1.528
1.164	1.239	1.16	1.244	1.155	1.249	1.149	1.255	1.144	1.263	1.137	1.271	1.13	1.28	1.122	1.291
0.975	1.026	0.973	1.029	0.969	1.033	0.966	1.037	0.962	1.042	0.957	1.047	0.952	1.053	0.947	1.06
0.785	0.816	0.783	0.818	0.781	0.82	0.779	0.822	0.776	0.825	0.774	0.828	0.77	0.832	0.767	0.836
0.592	0.608	0.591	0.609	0.59	0.61	0.589	0.612	0.588	0.613	0.586	0.615	0.584	0.616	0.583	0.619
0.544	0.557	0.543	0.557	0.542	0.558	0.541	0.559	0.54	0.561	0.539	0.562	0.537	0.563	0.536	0.565
0.495	0.505	0.494	0.506	0.494	0.507	0.493	0.507	0.492	0.508	0.491	0.509	0.49	0.511	0.489	0.512



8	9	10	11	13	14	16	18
13.34	11.896	10.61	9.465	8.444	7.535	6.724	6.003

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
13.288	Infinity	11.845	Infinity	10.559	Infinity	9.413	Infinity	8.392	Infinity	7.483	Infinity	6.673	Infinity	5.951	Infinity
9.245	Infinity	8.526	Infinity	7.842	Infinity	7.195	Infinity	6.586	Infinity	6.016	Infinity	5.483	Infinity	4.989	Infinity
7.088	Infinity	6.66	Infinity	6.237	Infinity	5.823	Infinity	5.42	Infinity	5.029	Infinity	4.654	Infinity	4.294	Infinity
5.747	39.445	5.464	61.857	5.177	171.112	4.89	Infinity	4.604	Infinity	4.321	Infinity	4.042	Infinity	3.77	Infinity
5.033	19.737	4.815	24.086	4.592	32.011	4.366	50.793	4.137	149.189	3.908	Infinity	3.679	Infinity	3.453	Infinity
4.622	14.546	4.439	16.771	4.249	20.252	4.055	26.412	3.858	40.135	3.658	96.504	3.458	Infinity	3.258	Infinity
4.169	10.77	4.02	11.937	3.864	13.594	3.704	16.105	3.539	20.325	3.371	28.815	3.201	54.331	3.029	Infinity
3.666	7.899	3.551	8.506	3.429	9.309	3.303	10.415	3.172	12.02	3.037	14.539	2.899	19.02	2.758	29.113
3.393	6.707	3.294	7.138	3.19	7.693	3.081	8.43	2.967	9.447	2.849	10.929	2.728	13.271	2.603	17.483
3.104	5.643	3.021	5.943	2.934	6.321	2.842	6.808	2.745	7.452	2.644	8.341	2.54	9.631	2.432	11.661
2.798	4.686	2.731	4.89	2.66	5.142	2.584	5.457	2.504	5.862	2.421	6.394	2.333	7.121	2.243	8.165
2.472	3.823	2.42	3.956	2.365	4.118	2.305	4.316	2.242	4.563	2.175	4.876	2.105	5.284	2.032	5.834
2.302	3.422	2.257	3.528	2.209	3.655	2.157	3.809	2.102	3.999	2.044	4.236	1.982	4.539	1.917	4.937
2.126	3.039	2.088	3.122	2.047	3.22	2.003	3.339	1.955	3.483	1.905	3.66	1.851	3.883	1.795	4.168
1.908	2.602	1.877	2.662	1.844	2.733	1.809	2.817	1.77	2.918	1.729	3.04	1.685	3.19	1.639	3.378
1.757	2.324	1.731	2.371	1.704	2.427	1.673	2.492	1.641	2.57	1.606	2.664	1.568	2.778	1.528	2.918
1.602	2.055	1.581	2.092	1.558	2.135	1.533	2.185	1.506	2.244	1.477	2.314	1.445	2.399	1.411	2.501
1.444	1.796	1.427	1.823	1.408	1.855	1.388	1.893	1.366	1.936	1.342	1.988	1.316	2.049	1.288	2.123
1.281	1.545	1.267	1.565	1.253	1.588	1.237	1.615	1.22	1.646	1.201	1.683	1.181	1.726	1.159	1.777
1.113	1.303	1.103	1.317	1.092	1.333	1.081	1.351	1.068	1.372	1.054	1.397	1.038	1.426	1.021	1.46
0.941	1.068	0.934	1.077	0.926	1.087	0.918	1.099	0.909	1.113	0.899	1.129	0.888	1.147	0.876	1.168
0.763	0.841	0.759	0.846	0.754	0.852	0.749	0.859	0.743	0.867	0.737	0.876	0.73	0.887	0.722	0.899
0.581	0.621	0.578	0.624	0.576	0.627	0.573	0.63	0.57	0.634	0.566	0.638	0.562	0.644	0.558	0.649
0.534	0.567	0.532	0.569	0.53	0.572	0.528	0.574	0.525	0.578	0.522	0.581	0.519	0.585	0.516	0.59
0.487	0.513	0.486	0.515	0.484	0.517	0.482	0.519	0.48	0.522	0.478	0.525	0.475	0.528	0.472	0.531



20	22
5.36	4.787

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
5.308	Infinity	4.735	Infinity
4.531	Infinity	4.109	Infinity
3.953	Infinity	3.629	Infinity
3.505	Infinity	3.25	Infinity
3.231	Infinity	3.013	Infinity
3.06	Infinity	2.865	Infinity
2.858	Infinity	2.688	Infinity
2.616	72.235	2.474	Infinity
2.477	27.196	2.349	72.546
2.322	15.284	2.21	23.502
2.149	9.778	2.053	12.574
1.955	6.606	1.876	7.762
1.849	5.475	1.778	6.242
1.736	4.543	1.674	5.054
1.59	3.618	1.538	3.932
1.486	3.094	1.441	3.318
1.375	2.628	1.337	2.787
1.259	2.212	1.227	2.322
1.135	1.838	1.11	1.912
1.003	1.5	0.984	1.548
0.863	1.193	0.849	1.222
0.714	0.913	0.704	0.929
0.554	0.656	0.548	0.664
0.512	0.595	0.508	0.601
0.469	0.536	0.466	0.54



Focal Length 75 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	152.641	144.245	128.525	114.519	102.042	90.926	81.022

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	152.542	Infinity	144.149	Infinity	128.432	Infinity	114.43	Infinity	101.956	Infinity	90.842	Infinity	80.94	Infinity
30.00	25.102	37.282	24.866	37.817	24.355	39.064	23.807	40.566	23.221	42.397	22.596	44.658	21.934	47.504
15.00	13.676	16.61	13.606	16.714	13.453	16.951	13.285	17.226	13.102	17.545	12.902	17.918	12.685	18.356
10.00	9.398	10.685	9.365	10.728	9.293	10.824	9.213	10.935	9.126	11.061	9.029	11.207	8.923	11.376
8.00	7.612	8.43	7.591	8.456	7.544	8.516	7.491	8.584	7.434	8.661	7.37	8.75	7.299	8.851
7.00	6.703	7.325	6.686	7.345	6.65	7.39	6.609	7.441	6.564	7.499	6.515	7.565	6.46	7.64
6.00	5.781	6.236	5.769	6.25	5.742	6.283	5.712	6.319	5.679	6.361	5.642	6.408	5.601	6.462
5.00	4.848	5.162	4.84	5.171	4.821	5.193	4.8	5.218	4.777	5.246	4.751	5.278	4.722	5.314
4.50	4.377	4.63	4.371	4.638	4.355	4.655	4.338	4.675	4.319	4.697	4.298	4.722	4.274	4.751
4.00	3.903	4.101	3.898	4.108	3.886	4.121	3.872	4.137	3.857	4.154	3.841	4.174	3.822	4.196
3.50	3.427	3.577	3.422	3.581	3.413	3.592	3.403	3.603	3.391	3.616	3.378	3.631	3.364	3.648
3.00	2.946	3.056	2.943	3.059	2.937	3.066	2.929	3.075	2.921	3.084	2.911	3.095	2.901	3.107
2.75	2.705	2.796	2.703	2.799	2.697	2.805	2.691	2.812	2.684	2.82	2.676	2.829	2.667	2.839
2.50	2.463	2.538	2.461	2.54	2.457	2.545	2.451	2.551	2.445	2.557	2.439	2.564	2.432	2.572
2.20	2.172	2.229	2.17	2.231	2.167	2.234	2.163	2.239	2.158	2.243	2.153	2.249	2.148	2.255
2.00	1.977	2.024	1.976	2.025	1.973	2.028	1.969	2.032	1.966	2.035	1.962	2.04	1.957	2.045
1.80	1.782	1.819	1.781	1.82	1.778	1.822	1.776	1.825	1.773	1.828	1.769	1.832	1.766	1.836
1.60	1.586	1.615	1.585	1.615	1.583	1.617	1.581	1.619	1.579	1.622	1.576	1.625	1.573	1.628
1.40	1.389	1.411	1.389	1.412	1.387	1.413	1.386	1.415	1.384	1.416	1.382	1.418	1.38	1.421
1.20	1.192	1.208	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.212	1.187	1.213	1.186	1.215
1.10	1.094	1.106	1.093	1.107	1.093	1.108	1.092	1.109	1.091	1.11	1.089	1.111	1.088	1.112
1.00	0.995	1.005	0.995	1.005	0.994	1.006	0.993	1.007	0.992	1.008	0.991	1.009	0.99	1.01
0.90	0.896	0.904	0.896	0.904	0.895	0.905	0.895	0.905	0.894	0.906	0.893	0.907	0.892	0.908
0.80	0.797	0.803	0.797	0.803	0.796	0.804	0.796	0.804	0.795	0.805	0.795	0.805	0.794	0.806
0.75	0.747	0.753	0.747	0.753	0.747	0.753	0.747	0.754	0.746	0.754	0.746	0.754	0.745	0.755



3.2	3.5	4	4.5	5	5.6	6.3	7.1
72.199	64.339	57.336	51.098	45.54	40.588	36.176	32.246

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
72.118	Infinity	64.259	Infinity	57.257	Infinity	51.019	Infinity	45.462	Infinity	40.511	Infinity	36.099	Infinity	32.17	Infinity
21.235	51.163	20.502	56.007	19.738	62.67	18.946	72.33	18.129	87.471	17.293	114.349	16.442	174.594	15.582	427.582
12.45	18.873	12.197	19.49	11.924	20.233	11.633	21.137	11.322	22.254	10.992	23.658	10.645	25.462	10.28	27.846
8.807	11.571	8.68	11.798	8.542	12.064	8.393	12.377	8.231	12.749	8.057	13.194	7.87	13.732	7.67	14.392
7.222	8.968	7.137	9.103	7.044	9.26	6.943	9.442	6.832	9.656	6.713	9.907	6.583	10.206	6.444	10.564
6.399	7.727	6.333	7.827	6.26	7.942	6.18	8.075	6.093	8.23	5.998	8.411	5.894	8.624	5.783	8.877
5.555	6.523	5.506	6.593	5.451	6.674	5.39	6.768	5.324	6.876	5.252	7.001	5.173	7.147	5.087	7.319
4.69	5.355	4.654	5.402	4.615	5.456	4.572	5.517	4.525	5.588	4.473	5.67	4.416	5.765	4.354	5.876
4.248	4.784	4.22	4.821	4.188	4.864	4.152	4.912	4.114	4.968	4.071	5.033	4.024	5.107	3.973	5.193
3.801	4.221	3.778	4.25	3.753	4.283	3.725	4.32	3.694	4.363	3.659	4.412	3.622	4.469	3.58	4.534
3.348	3.667	3.33	3.688	3.311	3.713	3.289	3.741	3.265	3.772	3.238	3.809	3.209	3.85	3.177	3.898
2.889	3.12	2.876	3.136	2.861	3.153	2.845	3.173	2.828	3.196	2.808	3.221	2.786	3.251	2.762	3.284
2.657	2.85	2.646	2.863	2.634	2.877	2.62	2.894	2.605	2.912	2.589	2.933	2.57	2.958	2.55	2.985
2.424	2.582	2.415	2.592	2.405	2.604	2.393	2.617	2.381	2.632	2.367	2.649	2.352	2.669	2.335	2.691
2.141	2.262	2.134	2.27	2.127	2.279	2.118	2.289	2.108	2.3	2.098	2.313	2.086	2.328	2.073	2.345
1.952	2.051	1.946	2.057	1.94	2.064	1.933	2.072	1.925	2.082	1.916	2.092	1.906	2.104	1.895	2.117
1.762	1.84	1.757	1.845	1.752	1.851	1.746	1.858	1.74	1.865	1.733	1.873	1.725	1.882	1.716	1.893
1.57	1.631	1.566	1.635	1.562	1.64	1.558	1.644	1.553	1.65	1.547	1.656	1.541	1.664	1.534	1.672
1.378	1.423	1.375	1.426	1.372	1.429	1.368	1.433	1.365	1.437	1.36	1.442	1.356	1.447	1.351	1.453
1.184	1.217	1.182	1.219	1.18	1.221	1.177	1.224	1.175	1.226	1.172	1.23	1.168	1.234	1.165	1.238
1.087	1.114	1.085	1.115	1.083	1.117	1.081	1.119	1.079	1.122	1.077	1.124	1.074	1.128	1.071	1.131
0.989	1.011	0.988	1.012	0.987	1.014	0.985	1.016	0.983	1.018	0.981	1.02	0.979	1.022	0.976	1.025
0.892	0.909	0.891	0.91	0.889	0.911	0.888	0.912	0.887	0.914	0.885	0.915	0.883	0.917	0.881	0.92
0.794	0.807	0.793	0.807	0.792	0.808	0.791	0.809	0.79	0.81	0.789	0.812	0.787	0.813	0.786	0.815
0.744	0.756	0.744	0.756	0.743	0.757	0.742	0.758	0.741	0.759	0.74	0.76	0.739	0.761	0.738	0.763



8	9	10	11	13	14	16	18
28.745	25.626	22.847	20.371	18.165	16.2	14.449	12.89

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
28.668	Infinity	25.549	Infinity	22.77	Infinity	20.295	Infinity	18.089	Infinity	16.124	Infinity	14.373	Infinity	12.814	Infinity
14.718	Infinity	13.856	Infinity	13.002	Infinity	12.161	Infinity	11.339	Infinity	10.54	Infinity	9.768	Infinity	9.027	Infinity
9.9	31.118	9.505	35.85	9.098	43.234	8.682	56.25	8.258	84.998	7.829	199.636	7.398	Infinity	6.968	Infinity
7.458	15.212	7.234	16.252	6.998	17.605	6.75	19.421	6.493	21.966	6.227	25.758	5.953	31.959	5.674	43.811
6.294	10.996	6.134	11.527	5.965	12.187	5.785	13.025	5.596	14.115	5.398	15.581	5.193	17.639	4.98	20.713
5.663	9.179	5.534	9.544	5.396	9.991	5.249	10.544	5.093	11.245	4.93	12.151	4.758	13.362	4.58	15.047
4.995	7.522	4.894	7.764	4.787	8.055	4.672	8.409	4.549	8.846	4.418	9.395	4.281	10.098	4.137	11.026
4.287	6.005	4.213	6.157	4.134	6.337	4.048	6.552	3.956	6.812	3.858	7.13	3.754	7.525	3.643	8.024
3.916	5.293	3.855	5.41	3.789	5.548	3.718	5.711	3.64	5.907	3.557	6.143	3.469	6.432	3.375	6.791
3.535	4.61	3.485	4.698	3.432	4.8	3.373	4.922	3.31	5.065	3.242	5.237	3.168	5.444	3.09	5.697
3.141	3.954	3.103	4.018	3.06	4.092	3.014	4.179	2.964	4.281	2.909	4.402	2.851	4.546	2.788	4.72
2.735	3.323	2.706	3.368	2.674	3.419	2.639	3.479	2.601	3.548	2.56	3.63	2.515	3.726	2.466	3.841
2.528	3.017	2.503	3.053	2.476	3.095	2.446	3.144	2.413	3.2	2.378	3.266	2.339	3.343	2.297	3.434
2.316	2.717	2.296	2.746	2.273	2.779	2.248	2.818	2.221	2.863	2.191	2.915	2.158	2.976	2.123	3.047
2.058	2.364	2.042	2.385	2.024	2.41	2.005	2.439	1.983	2.472	1.96	2.51	1.934	2.555	1.906	2.606
1.883	2.133	1.87	2.15	1.855	2.17	1.839	2.193	1.821	2.22	1.802	2.25	1.78	2.285	1.757	2.326
1.706	1.905	1.695	1.919	1.684	1.935	1.67	1.953	1.656	1.973	1.64	1.997	1.622	2.024	1.603	2.056
1.527	1.681	1.518	1.692	1.509	1.704	1.498	1.717	1.487	1.733	1.474	1.751	1.46	1.771	1.445	1.795
1.345	1.46	1.338	1.468	1.331	1.477	1.323	1.487	1.314	1.498	1.305	1.511	1.294	1.526	1.282	1.543
1.16	1.243	1.156	1.248	1.151	1.254	1.145	1.261	1.138	1.269	1.131	1.278	1.123	1.289	1.115	1.3
1.067	1.135	1.063	1.139	1.059	1.144	1.054	1.15	1.049	1.157	1.043	1.164	1.037	1.172	1.029	1.182
0.973	1.028	0.97	1.032	0.967	1.036	0.963	1.04	0.959	1.045	0.954	1.051	0.948	1.058	0.943	1.066
0.879	0.922	0.877	0.925	0.874	0.928	0.871	0.932	0.867	0.936	0.863	0.94	0.859	0.945	0.854	0.951
0.784	0.817	0.782	0.819	0.78	0.821	0.778	0.824	0.775	0.827	0.772	0.83	0.769	0.834	0.765	0.839
0.736	0.764	0.735	0.766	0.733	0.768	0.731	0.77	0.728	0.773	0.726	0.776	0.723	0.779	0.72	0.783



20	22
11.5	10.262

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
11.424	Infinity	10.186	Infinity
8.32	Infinity	7.648	Infinity
6.542	Infinity	6.122	Infinity
5.39	75.132	5.104	382.77
4.761	25.76	4.538	35.479
4.395	17.532	4.205	21.528
3.986	12.295	3.83	14.124
3.527	8.67	3.405	9.533
3.275	7.246	3.17	7.836
3.007	6.012	2.919	6.409
2.721	4.932	2.649	5.194
2.414	3.979	2.358	4.145
2.252	3.543	2.204	3.674
2.085	3.131	2.044	3.232
1.876	2.667	1.843	2.739
1.731	2.374	1.703	2.43
1.582	2.092	1.559	2.135
1.428	1.822	1.409	1.854
1.269	1.563	1.255	1.586
1.105	1.314	1.095	1.33
1.021	1.193	1.012	1.206
0.936	1.074	0.929	1.084
0.849	0.958	0.843	0.966
0.761	0.844	0.757	0.849
0.716	0.787	0.713	0.792



Focal Length 90 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (m)	213.881	202.115	180.085	160.458	142.972	127.394	113.516

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	213.746	Infinity	201.985	Infinity	179.963	Infinity	160.343	Infinity	142.862	Infinity	127.288	Infinity	113.413	Infinity
30.00	26.339	34.848	26.153	35.179	25.749	35.94	25.31	36.833	24.835	37.891	24.323	39.153	23.772	40.674
15.00	14.034	16.11	13.982	16.18	13.866	16.337	13.739	16.518	13.599	16.725	13.446	16.964	13.277	17.241
10.00	9.565	10.477	9.541	10.506	9.488	10.571	9.429	10.646	9.363	10.731	9.291	10.828	9.211	10.939
8.00	7.721	8.3	7.706	8.318	7.671	8.359	7.633	8.405	7.59	8.457	7.543	8.517	7.49	8.585
7.00	6.787	7.227	6.775	7.241	6.748	7.272	6.719	7.306	6.686	7.346	6.649	7.391	6.609	7.441
6.00	5.844	6.165	5.835	6.175	5.815	6.197	5.793	6.222	5.769	6.25	5.742	6.283	5.712	6.319
5.00	4.892	5.113	4.886	5.12	4.872	5.135	4.857	5.152	4.84	5.171	4.821	5.193	4.8	5.217
4.50	4.413	4.591	4.408	4.596	4.397	4.608	4.385	4.622	4.371	4.637	4.356	4.654	4.339	4.674
4.00	3.932	4.071	3.928	4.075	3.919	4.084	3.909	4.095	3.899	4.107	3.886	4.121	3.873	4.136
3.50	3.448	3.554	3.445	3.557	3.438	3.564	3.431	3.572	3.423	3.581	3.414	3.591	3.403	3.602
3.00	2.962	3.039	2.96	3.041	2.955	3.046	2.95	3.052	2.944	3.058	2.937	3.066	2.93	3.074
2.75	2.719	2.782	2.717	2.784	2.713	2.788	2.708	2.793	2.703	2.798	2.698	2.805	2.691	2.811
2.50	2.474	2.526	2.473	2.528	2.47	2.531	2.466	2.535	2.462	2.54	2.457	2.544	2.452	2.55
2.20	2.18	2.22	2.179	2.221	2.177	2.224	2.174	2.227	2.171	2.23	2.167	2.234	2.163	2.238
2.00	1.984	2.016	1.983	2.017	1.981	2.019	1.979	2.022	1.976	2.024	1.973	2.027	1.97	2.031
1.80	1.787	1.813	1.787	1.814	1.785	1.815	1.783	1.817	1.781	1.819	1.779	1.822	1.776	1.825
1.60	1.59	1.61	1.59	1.611	1.588	1.612	1.587	1.613	1.585	1.615	1.583	1.617	1.582	1.619
1.40	1.393	1.407	1.392	1.408	1.391	1.409	1.39	1.41	1.389	1.411	1.388	1.413	1.386	1.414
1.20	1.195	1.205	1.194	1.206	1.194	1.206	1.193	1.207	1.192	1.208	1.191	1.209	1.19	1.21
1.10	1.096	1.104	1.095	1.105	1.095	1.105	1.094	1.106	1.094	1.106	1.093	1.107	1.092	1.108
1.00	0.997	1.003	0.996	1.004	0.996	1.004	0.995	1.005	0.995	1.005	0.994	1.006	0.994	1.007
0.90	0.897	0.903	0.897	0.903	0.897	0.903	0.896	0.904	0.896	0.904	0.896	0.905	0.895	0.905
0.85	0.848	0.852	0.848	0.852	0.847	0.853	0.847	0.853	0.847	0.854	0.846	0.854	0.846	0.854



3.2	3.5	4	4.5	5	5.6	6.3	7.1
101.151	90.136	80.323	71.58	63.791	56.851	50.669	45.162

3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
101.052	Infinity	90.038	Infinity	80.227	Infinity	71.485	Infinity	63.697	Infinity	56.759	Infinity	50.577	Infinity	45.07	Infinity
23.183	42.529	22.556	44.824	21.892	47.715	21.191	51.44	20.457	56.382	19.691	63.2	18.898	73.13	18.08	88.797
13.093	17.562	12.893	17.938	12.675	18.379	12.439	18.901	12.185	19.524	11.912	20.274	11.619	21.189	11.308	22.319
9.123	11.066	9.026	11.213	8.92	11.382	8.803	11.578	8.676	11.806	8.538	12.074	8.388	12.389	8.226	12.763
7.432	8.663	7.368	8.752	7.298	8.854	7.221	8.971	7.136	9.107	7.042	9.264	6.941	9.447	6.83	9.661
6.564	7.499	6.514	7.566	6.459	7.641	6.399	7.728	6.332	7.828	6.259	7.943	6.179	8.077	6.092	8.232
5.679	6.361	5.642	6.408	5.601	6.462	5.556	6.523	5.506	6.594	5.451	6.675	5.391	6.768	5.324	6.876
4.777	5.245	4.751	5.277	4.722	5.313	4.69	5.354	4.655	5.401	4.616	5.455	4.573	5.517	4.526	5.587
4.32	4.696	4.299	4.722	4.275	4.75	4.249	4.783	4.22	4.82	4.189	4.863	4.154	4.911	4.115	4.967
3.858	4.153	3.841	4.173	3.823	4.195	3.802	4.22	3.779	4.249	3.754	4.282	3.726	4.319	3.695	4.361
3.392	3.615	3.379	3.63	3.365	3.647	3.349	3.666	3.332	3.687	3.312	3.711	3.29	3.739	3.267	3.771
2.921	3.083	2.912	3.094	2.902	3.106	2.89	3.119	2.877	3.134	2.863	3.152	2.847	3.171	2.829	3.194
2.684	2.819	2.677	2.828	2.668	2.838	2.658	2.849	2.647	2.861	2.635	2.876	2.622	2.892	2.607	2.91
2.446	2.556	2.44	2.563	2.433	2.571	2.425	2.58	2.416	2.591	2.406	2.602	2.395	2.615	2.383	2.63
2.159	2.243	2.154	2.248	2.148	2.254	2.142	2.261	2.136	2.269	2.128	2.277	2.119	2.287	2.11	2.298
1.966	2.035	1.962	2.039	1.958	2.044	1.953	2.05	1.947	2.056	1.941	2.063	1.934	2.071	1.926	2.08
1.773	1.828	1.77	1.831	1.766	1.835	1.762	1.839	1.758	1.844	1.753	1.85	1.747	1.856	1.741	1.863
1.579	1.621	1.577	1.624	1.574	1.627	1.571	1.63	1.567	1.634	1.563	1.638	1.559	1.643	1.554	1.649
1.385	1.416	1.383	1.418	1.381	1.42	1.378	1.423	1.376	1.425	1.373	1.428	1.369	1.432	1.366	1.436
1.189	1.211	1.188	1.213	1.186	1.214	1.185	1.216	1.183	1.218	1.181	1.22	1.178	1.223	1.176	1.225
1.091	1.109	1.09	1.11	1.089	1.112	1.087	1.113	1.086	1.115	1.084	1.116	1.082	1.118	1.08	1.121
0.993	1.007	0.992	1.008	0.991	1.009	0.99	1.01	0.989	1.012	0.987	1.013	0.986	1.015	0.984	1.017
0.894	0.906	0.894	0.906	0.893	0.907	0.892	0.908	0.891	0.909	0.89	0.91	0.889	0.911	0.887	0.913
0.845	0.855	0.844	0.856	0.844	0.856	0.843	0.857	0.842	0.858	0.841	0.859	0.84	0.86	0.839	0.861



8	9	10	11	13	14	16	18
40.255	35.883	31.989	28.519	25.428	22.674	20.221	18.035

8		9		10		11		13		14		16		18	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
40.164	Infinity	35.793	Infinity	31.898	Infinity	28.429	Infinity	25.338	Infinity	22.584	Infinity	20.131	Infinity	17.946	Infinity
17.243	116.931	16.392	181.521	15.532	478.206	14.668	Infinity	13.807	Infinity	12.955	Infinity	12.116	Infinity	11.296	Infinity
10.978	23.741	10.63	25.57	10.264	27.993	9.884	31.328	9.489	36.168	9.082	43.763	8.665	57.279	8.241	87.724
8.052	13.212	7.865	13.754	7.665	14.419	7.453	15.247	7.228	16.298	6.992	17.666	6.744	19.507	6.487	22.093
6.711	9.914	6.581	10.214	6.442	10.574	6.292	11.009	6.132	11.542	5.962	12.207	5.783	13.052	5.594	14.152
5.997	8.414	5.894	8.628	5.782	8.882	5.662	9.185	5.533	9.552	5.395	10	5.248	10.557	5.093	11.261
5.252	7.002	5.173	7.148	5.088	7.32	4.995	7.523	4.895	7.766	4.788	8.058	4.673	8.412	4.55	8.851
4.474	5.669	4.418	5.764	4.356	5.874	4.288	6.003	4.215	6.155	4.136	6.335	4.05	6.55	3.959	6.81
4.072	5.031	4.025	5.105	3.974	5.191	3.918	5.29	3.858	5.407	3.792	5.545	3.72	5.708	3.643	5.903
3.661	4.41	3.623	4.467	3.582	4.532	3.537	4.607	3.488	4.694	3.434	4.797	3.376	4.917	3.313	5.06
3.24	3.807	3.211	3.848	3.179	3.896	3.144	3.95	3.105	4.014	3.063	4.088	3.017	4.174	2.967	4.275
2.81	3.219	2.788	3.248	2.764	3.282	2.738	3.32	2.709	3.364	2.677	3.415	2.643	3.474	2.605	3.543
2.591	2.931	2.572	2.955	2.552	2.982	2.53	3.014	2.506	3.05	2.479	3.091	2.449	3.139	2.417	3.195
2.369	2.647	2.354	2.666	2.337	2.688	2.319	2.714	2.298	2.742	2.276	2.775	2.251	2.814	2.224	2.858
2.099	2.311	2.088	2.326	2.075	2.342	2.061	2.361	2.045	2.382	2.027	2.407	2.008	2.435	1.987	2.467
1.918	2.09	1.908	2.102	1.897	2.115	1.886	2.13	1.873	2.147	1.858	2.167	1.842	2.189	1.825	2.215
1.734	1.871	1.726	1.881	1.718	1.891	1.708	1.903	1.698	1.916	1.686	1.932	1.673	1.949	1.659	1.969
1.549	1.655	1.543	1.662	1.536	1.67	1.529	1.679	1.52	1.689	1.511	1.701	1.501	1.714	1.49	1.729
1.362	1.441	1.357	1.446	1.352	1.452	1.347	1.458	1.34	1.466	1.333	1.474	1.326	1.484	1.317	1.495
1.173	1.229	1.17	1.232	1.166	1.236	1.162	1.241	1.157	1.246	1.152	1.252	1.147	1.259	1.141	1.266
1.078	1.123	1.075	1.126	1.072	1.13	1.069	1.133	1.065	1.138	1.061	1.142	1.056	1.148	1.051	1.154
0.982	1.019	0.98	1.021	0.978	1.024	0.975	1.027	0.972	1.03	0.969	1.034	0.965	1.038	0.961	1.043
0.886	0.915	0.884	0.916	0.882	0.918	0.88	0.921	0.878	0.923	0.875	0.926	0.872	0.93	0.869	0.933
0.838	0.863	0.836	0.864	0.835	0.866	0.833	0.868	0.831	0.87	0.828	0.873	0.826	0.876	0.823	0.879



20	22
16.088	14.353

20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
15.998	Infinity	14.264	Infinity
10.499	Infinity	9.73	Infinity
7.813	217.867	7.383	Infinity
6.221	25.96	5.948	32.32
5.397	15.633	5.191	17.717
4.93	12.174	4.759	13.395
4.42	9.401	4.283	10.107
3.861	7.128	3.757	7.522
3.561	6.138	3.473	6.427
3.245	5.231	3.172	5.437
2.913	4.395	2.855	4.538
2.564	3.624	2.519	3.719
2.382	3.26	2.344	3.336
2.195	2.909	2.163	2.969
1.964	2.505	1.938	2.548
1.805	2.245	1.784	2.279
1.643	1.992	1.626	2.019
1.477	1.746	1.464	1.766
1.308	1.508	1.297	1.522
1.134	1.275	1.126	1.285
1.046	1.161	1.039	1.169
0.956	1.049	0.951	1.055
0.866	0.938	0.862	0.943
0.82	0.883	0.816	0.887



Focal Length 135 mm

Circle of Confusion 0.025 mm

T/No	1.9	2	2.2	2.5	2.8	3.2	3.5
Hyperfocal Distance (m)	375.554	356.792	317.9	283.251	252.382	224.881	200.381

T/No	1.9		2		2.2		2.5		2.8		3.2		3.5	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	375.28	Infinity	356.532	Infinity	317.666	Infinity	283.038	Infinity	252.185	Infinity	224.698	Infinity	200.207	Infinity
30.00	27.814	32.562	27.708	32.709	27.451	33.075	27.168	33.495	26.858	33.981	26.518	34.542	26.147	35.195
15.00	14.442	15.604	14.414	15.637	14.345	15.718	14.269	15.811	14.184	15.917	14.09	16.037	13.987	16.174
10.00	9.753	10.26	9.74	10.274	9.709	10.309	9.675	10.348	9.637	10.392	9.594	10.443	9.547	10.5
8.00	7.843	8.164	7.835	8.172	7.815	8.194	7.793	8.218	7.769	8.246	7.741	8.277	7.711	8.312
7.00	6.881	7.124	6.874	7.13	6.859	7.147	6.843	7.165	6.824	7.186	6.803	7.209	6.779	7.236
6.00	5.913	6.09	5.909	6.094	5.898	6.106	5.885	6.119	5.872	6.134	5.856	6.151	5.839	6.17
5.00	4.941	5.061	4.937	5.064	4.93	5.072	4.921	5.081	4.912	5.091	4.902	5.103	4.89	5.116
4.50	4.452	4.549	4.45	4.551	4.444	4.558	4.437	4.565	4.429	4.573	4.421	4.582	4.411	4.592
4.00	3.963	4.038	3.961	4.04	3.956	4.045	3.951	4.05	3.945	4.057	3.938	4.064	3.931	4.072
3.50	3.472	3.528	3.471	3.53	3.467	3.534	3.463	3.538	3.459	3.542	3.454	3.548	3.448	3.554
3.00	2.98	3.02	2.979	3.021	2.976	3.024	2.973	3.027	2.97	3.03	2.967	3.034	2.963	3.038
2.75	2.733	2.767	2.733	2.768	2.73	2.77	2.728	2.772	2.725	2.775	2.722	2.778	2.719	2.782
2.50	2.487	2.514	2.486	2.514	2.484	2.516	2.482	2.518	2.48	2.52	2.478	2.523	2.475	2.526
2.20	2.19	2.21	2.189	2.211	2.188	2.212	2.187	2.214	2.185	2.215	2.183	2.217	2.181	2.219
2.00	1.992	2.008	1.991	2.009	1.99	2.01	1.989	2.011	1.988	2.012	1.986	2.014	1.985	2.015
1.80	1.794	1.806	1.793	1.807	1.792	1.808	1.792	1.809	1.791	1.81	1.789	1.811	1.788	1.812
1.60	1.595	1.605	1.595	1.605	1.594	1.606	1.594	1.606	1.593	1.607	1.592	1.608	1.591	1.609
1.40	1.396	1.404	1.396	1.404	1.396	1.404	1.395	1.405	1.395	1.405	1.394	1.406	1.393	1.407
1.20	1.198	1.202	1.197	1.203	1.197	1.203	1.197	1.203	1.196	1.204	1.196	1.204	1.196	1.205
1.10	1.098	1.102	1.098	1.102	1.098	1.102	1.097	1.103	1.097	1.103	1.097	1.103	1.096	1.104
1.00	0.999	1.001	0.998	1.002	0.998	1.002	0.998	1.002	0.998	1.002	0.998	1.003	0.997	1.003



4	4.5	5	5.6	6.3	7.1	8	9
178.553	159.107	141.783	126.348	112.598	100.348	89.434	79.711

4		4.5		5		5.6		6.3		7.1		8		9	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
178.388	Infinity	158.949	Infinity	141.629	Infinity	126.199	Infinity	112.452	Infinity	100.204	Infinity	89.292	Infinity	79.571	Infinity
25.743	35.959	25.303	36.856	24.828	37.919	24.315	39.188	23.765	40.717	23.176	42.583	22.549	44.894	21.885	47.807
13.872	16.331	13.745	16.51	13.606	16.717	13.453	16.954	13.286	17.23	13.103	17.55	12.903	17.924	12.687	18.363
9.494	10.564	9.436	10.638	9.371	10.722	9.299	10.817	9.22	10.927	9.133	11.053	9.037	11.197	8.932	11.364
7.677	8.352	7.639	8.398	7.597	8.449	7.551	8.508	7.499	8.575	7.442	8.651	7.379	8.738	7.31	8.838
6.753	7.266	6.724	7.3	6.692	7.338	6.656	7.382	6.617	7.432	6.573	7.488	6.524	7.553	6.47	7.627
5.82	6.192	5.799	6.216	5.775	6.244	5.749	6.275	5.72	6.31	5.687	6.351	5.651	6.397	5.611	6.449
4.877	5.13	4.862	5.147	4.845	5.165	4.827	5.186	4.807	5.21	4.784	5.237	4.759	5.267	4.731	5.302
4.401	4.604	4.389	4.617	4.376	4.632	4.361	4.648	4.345	4.667	4.327	4.689	4.306	4.713	4.284	4.74
3.923	4.081	3.913	4.091	3.903	4.102	3.891	4.115	3.879	4.13	3.864	4.146	3.848	4.165	3.831	4.186
3.442	3.56	3.435	3.568	3.427	3.576	3.418	3.586	3.408	3.597	3.398	3.609	3.385	3.623	3.372	3.639
2.958	3.043	2.953	3.049	2.947	3.055	2.941	3.061	2.934	3.069	2.926	3.078	2.918	3.088	2.908	3.099
2.715	2.786	2.711	2.79	2.707	2.795	2.701	2.801	2.695	2.807	2.689	2.814	2.682	2.822	2.674	2.831
2.472	2.529	2.469	2.532	2.465	2.536	2.46	2.541	2.456	2.546	2.45	2.552	2.444	2.558	2.438	2.566
2.179	2.222	2.176	2.224	2.173	2.227	2.17	2.231	2.167	2.234	2.163	2.239	2.158	2.244	2.153	2.249
1.983	2.017	1.981	2.02	1.979	2.022	1.976	2.025	1.973	2.028	1.97	2.031	1.966	2.035	1.962	2.039
1.787	1.814	1.785	1.815	1.783	1.817	1.781	1.819	1.779	1.822	1.776	1.824	1.773	1.827	1.77	1.831
1.59	1.61	1.589	1.612	1.587	1.613	1.586	1.615	1.584	1.616	1.582	1.618	1.58	1.621	1.577	1.623
1.393	1.407	1.392	1.408	1.391	1.409	1.39	1.411	1.388	1.412	1.387	1.413	1.385	1.415	1.384	1.417
1.195	1.205	1.194	1.206	1.194	1.206	1.193	1.207	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.211
1.096	1.104	1.095	1.105	1.095	1.105	1.094	1.106	1.094	1.106	1.093	1.107	1.092	1.108	1.091	1.109
0.997	1.003	0.996	1.004	0.996	1.004	0.996	1.004	0.995	1.005	0.994	1.006	0.994	1.006	0.993	1.007



10	11	13	14	16	18	20	22
71.049	63.331	56.456	50.331	44.874	40.013	35.681	31.823

10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
70.91	Infinity	63.194	Infinity	56.319	Infinity	50.195	Infinity	44.739	Infinity	39.878	Infinity	35.547	Infinity	31.688	Infinity
21.185	51.565	20.451	56.558	19.686	63.459	18.894	73.54	18.077	89.513	17.242	118.409	16.393	185.805	15.535	515.612
12.452	18.883	12.199	19.503	11.927	20.25	11.636	21.16	11.327	22.285	10.998	23.701	10.652	25.523	10.289	27.937
8.817	11.558	8.692	11.783	8.555	12.047	8.407	12.358	8.247	12.727	8.074	13.169	7.889	13.703	7.691	14.358
7.234	8.953	7.15	9.086	7.058	9.24	6.959	9.42	6.85	9.63	6.732	9.877	6.604	10.171	6.467	10.523
6.411	7.712	6.346	7.809	6.274	7.922	6.196	8.052	6.11	8.204	6.017	8.381	5.916	8.59	5.806	8.837
5.567	6.509	5.518	6.577	5.465	6.656	5.406	6.746	5.342	6.851	5.271	6.973	5.194	7.115	5.11	7.281
4.701	5.342	4.666	5.387	4.629	5.439	4.587	5.498	4.541	5.566	4.491	5.645	4.436	5.736	4.376	5.842
4.259	4.772	4.231	4.807	4.2	4.848	4.166	4.894	4.129	4.948	4.088	5.009	4.043	5.08	3.994	5.162
3.811	4.21	3.789	4.237	3.765	4.268	3.738	4.304	3.708	4.344	3.676	4.391	3.64	4.444	3.6	4.506
3.357	3.657	3.34	3.677	3.322	3.7	3.301	3.726	3.279	3.756	3.253	3.79	3.226	3.829	3.195	3.873
2.897	3.111	2.885	3.125	2.871	3.142	2.856	3.16	2.84	3.181	2.821	3.205	2.801	3.232	2.779	3.263
2.664	2.842	2.654	2.853	2.643	2.867	2.631	2.882	2.617	2.899	2.601	2.918	2.584	2.94	2.566	2.965
2.43	2.574	2.422	2.583	2.413	2.594	2.403	2.606	2.392	2.62	2.379	2.635	2.365	2.653	2.35	2.673
2.148	2.255	2.141	2.262	2.134	2.27	2.127	2.279	2.118	2.289	2.108	2.301	2.098	2.314	2.086	2.329
1.958	2.044	1.953	2.05	1.947	2.056	1.941	2.063	1.934	2.072	1.926	2.081	1.917	2.091	1.908	2.103
1.767	1.835	1.763	1.839	1.758	1.844	1.753	1.85	1.748	1.856	1.742	1.863	1.735	1.871	1.727	1.88
1.575	1.626	1.572	1.63	1.568	1.633	1.564	1.637	1.56	1.642	1.555	1.647	1.55	1.654	1.544	1.66
1.382	1.419	1.379	1.421	1.377	1.424	1.374	1.427	1.371	1.43	1.368	1.434	1.364	1.439	1.359	1.444
1.187	1.213	1.186	1.215	1.184	1.216	1.182	1.218	1.18	1.221	1.178	1.223	1.175	1.226	1.172	1.229
1.09	1.11	1.089	1.112	1.087	1.113	1.086	1.115	1.084	1.116	1.082	1.119	1.08	1.121	1.078	1.124
0.992	1.008	0.991	1.009	0.99	1.01	0.989	1.011	0.988	1.013	0.986	1.014	0.984	1.016	0.983	1.018



Focal Length 66 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8	3.2	3.5	4
Hyperfocal Distance (m)	82.882	77.539	69.091	61.566	54.861	48.888	43.566

T/No	2.1		2.2		2.5		2.8		3.2		3.5		4	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	82.809	Infinity	77.467	Infinity	69.021	Infinity	61.496	Infinity	54.792	Infinity	48.819	Infinity	43.498	Infinity
30.00	22.053	46.929	21.658	48.832	20.945	52.902	20.199	58.362	19.422	66.01	18.619	77.399	17.793	95.991
15.00	12.72	18.28	12.588	18.56	12.345	19.116	12.084	19.781	11.803	20.585	11.503	21.57	11.184	22.793
10.00	8.938	11.35	8.873	11.457	8.752	11.666	8.62	11.909	8.477	12.194	8.322	12.531	8.155	12.932
8.00	7.308	8.838	7.265	8.902	7.184	9.027	7.095	9.171	6.998	9.339	6.893	9.534	6.778	9.764
7.00	6.466	7.631	6.432	7.679	6.369	7.771	6.299	7.878	6.223	8.001	6.14	8.143	6.049	8.31
6.00	5.605	6.456	5.579	6.49	5.532	6.556	5.479	6.631	5.422	6.717	5.359	6.817	5.29	6.933
5.00	4.724	5.311	4.706	5.334	4.672	5.378	4.635	5.428	4.594	5.486	4.549	5.552	4.499	5.628
4.50	4.276	4.749	4.261	4.768	4.234	4.803	4.203	4.842	4.17	4.888	4.132	4.94	4.092	5
4.00	3.823	4.195	3.811	4.209	3.789	4.236	3.765	4.267	3.738	4.302	3.708	4.342	3.675	4.388
3.50	3.364	3.647	3.355	3.658	3.338	3.678	3.32	3.702	3.299	3.728	3.276	3.758	3.25	3.792
3.00	2.9	3.107	2.894	3.114	2.881	3.129	2.867	3.146	2.852	3.164	2.835	3.186	2.816	3.21
2.75	2.666	2.839	2.661	2.845	2.65	2.858	2.639	2.871	2.626	2.887	2.611	2.905	2.595	2.925
2.50	2.431	2.573	2.427	2.578	2.418	2.588	2.408	2.599	2.397	2.612	2.385	2.626	2.372	2.643
2.20	2.147	2.256	2.143	2.26	2.137	2.267	2.129	2.276	2.121	2.285	2.112	2.296	2.101	2.309
2.00	1.956	2.046	1.953	2.049	1.948	2.055	1.942	2.062	1.935	2.07	1.927	2.079	1.919	2.089
1.80	1.765	1.837	1.763	1.839	1.758	1.844	1.753	1.85	1.748	1.856	1.741	1.863	1.734	1.871
1.60	1.573	1.628	1.571	1.63	1.567	1.634	1.563	1.639	1.559	1.643	1.554	1.649	1.549	1.655
1.40	1.379	1.421	1.378	1.423	1.375	1.426	1.372	1.429	1.369	1.433	1.365	1.437	1.361	1.441
1.20	1.185	1.215	1.184	1.216	1.182	1.218	1.18	1.221	1.178	1.223	1.175	1.226	1.172	1.23
1.00	0.99	1.01	0.989	1.011	0.988	1.012	0.986	1.014	0.985	1.016	0.983	1.018	0.981	1.02
0.80	0.794	0.806	0.793	0.807	0.793	0.808	0.792	0.809	0.791	0.81	0.79	0.811	0.788	0.812
0.60	0.597	0.603	0.597	0.604	0.596	0.604	0.596	0.604	0.595	0.605	0.595	0.606	0.594	0.606



4.5	5	5.6	6.3	7.1	8	9	10
38.825	34.602	30.839	27.487	24.5	21.839	19.469	17.357

4.5		5		5.6		6.3		7.1		8		9		10	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
38.758	Infinity	34.535	Infinity	30.772	Infinity	27.42	Infinity	24.433	Infinity	21.773	Infinity	19.402	Infinity	17.291	Infinity
16.95	131.441	16.094	224.548	15.23	1097.236	14.366	Infinity	13.505	Infinity	12.655	Infinity	11.82	Infinity	11.006	Infinity
10.847	24.344	10.491	26.358	10.119	29.056	9.732	32.829	9.332	38.435	8.92	47.552	8.499	64.819	8.072	109.456
7.975	13.414	7.782	14.001	7.577	14.723	7.359	15.628	7.129	16.788	6.887	18.313	6.635	20.394	6.373	23.378
6.654	10.035	6.52	10.358	6.375	10.747	6.221	11.22	6.056	11.802	5.882	12.533	5.697	13.47	5.504	14.705
5.95	8.505	5.842	8.735	5.727	9.009	5.602	9.338	5.469	9.737	5.326	10.228	5.175	10.841	5.015	11.625
5.214	7.068	5.132	7.226	5.043	7.411	4.946	7.631	4.842	7.895	4.731	8.213	4.611	8.603	4.485	9.087
4.445	5.716	4.385	5.818	4.32	5.937	4.249	6.077	4.173	6.242	4.09	6.438	4.001	6.673	3.906	6.959
4.047	5.069	3.997	5.149	3.943	5.242	3.885	5.35	3.821	5.477	3.752	5.627	3.677	5.806	3.597	6.02
3.639	4.441	3.599	4.502	3.556	4.573	3.508	4.654	3.456	4.75	3.4	4.862	3.339	4.994	3.273	5.151
3.222	3.831	3.191	3.876	3.157	3.928	3.12	3.988	3.079	4.057	3.034	4.138	2.986	4.233	2.933	4.344
2.795	3.238	2.772	3.27	2.746	3.306	2.718	3.348	2.687	3.397	2.653	3.453	2.617	3.518	2.576	3.594
2.578	2.948	2.558	2.974	2.536	3.004	2.512	3.038	2.486	3.078	2.457	3.124	2.426	3.177	2.391	3.238
2.357	2.661	2.341	2.683	2.323	2.707	2.303	2.734	2.281	2.766	2.257	2.803	2.231	2.845	2.202	2.894
2.09	2.323	2.077	2.339	2.063	2.357	2.047	2.378	2.03	2.402	2.011	2.429	1.99	2.46	1.967	2.497
1.909	2.1	1.899	2.113	1.887	2.128	1.874	2.145	1.86	2.164	1.844	2.186	1.826	2.211	1.807	2.24
1.727	1.88	1.718	1.89	1.709	1.902	1.698	1.915	1.686	1.93	1.674	1.948	1.659	1.968	1.644	1.99
1.542	1.662	1.536	1.67	1.528	1.679	1.52	1.689	1.511	1.701	1.5	1.714	1.489	1.729	1.477	1.747
1.356	1.447	1.351	1.453	1.346	1.459	1.339	1.467	1.332	1.475	1.324	1.485	1.316	1.496	1.306	1.509
1.168	1.233	1.165	1.238	1.161	1.242	1.156	1.248	1.151	1.254	1.145	1.261	1.139	1.269	1.132	1.278
0.979	1.022	0.976	1.025	0.973	1.028	0.97	1.032	0.966	1.036	0.963	1.041	0.958	1.046	0.953	1.052
0.787	0.814	0.785	0.815	0.783	0.817	0.782	0.819	0.779	0.822	0.777	0.825	0.774	0.828	0.771	0.831
0.593	0.607	0.592	0.608	0.591	0.609	0.59	0.61	0.589	0.611	0.588	0.613	0.586	0.614	0.585	0.616



11	13	14	16	18	20	22
15.476	13.799	12.306	10.976	9.79	8.735	7.794

11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
15.409	Infinity	13.733	Infinity	12.24	Infinity	10.91	Infinity	9.724	Infinity	8.669	Infinity	7.728	Infinity
10.216	Infinity	9.455	Infinity	8.726	Infinity	8.031	Infinity	7.373	Infinity	6.753	Infinity	6.171	Infinity
7.641	483.181	7.209	Infinity	6.779	Infinity	6.355	Infinity	5.938	Infinity	5.531	Infinity	5.136	Infinity
6.102	27.975	5.825	35.905	5.543	52.679	5.257	110.872	4.97	Infinity	4.683	Infinity	4.398	Infinity
5.302	16.392	5.092	18.818	4.876	22.57	4.654	29.083	4.428	43.04	4.2	93.408	3.97	Infinity
4.847	12.651	4.672	14.044	4.49	16.027	4.302	19.047	4.109	24.164	3.912	34.613	3.713	67.334
4.35	9.699	4.209	10.495	4.061	11.559	3.907	13.045	3.748	15.248	3.584	18.819	3.417	25.541
3.804	7.311	3.696	7.752	3.583	8.314	3.463	9.052	3.338	10.054	3.208	11.483	3.074	13.667
3.511	6.281	3.419	6.601	3.321	7.003	3.219	7.518	3.111	8.194	2.998	9.115	2.881	10.433
3.202	5.339	3.125	5.569	3.044	5.851	2.958	6.204	2.867	6.655	2.771	7.247	2.671	8.052
2.876	4.477	2.815	4.636	2.749	4.829	2.679	5.065	2.605	5.36	2.526	5.735	2.443	6.225
2.533	3.684	2.485	3.79	2.434	3.917	2.38	4.069	2.321	4.256	2.259	4.487	2.193	4.779
2.354	3.31	2.313	3.395	2.269	3.496	2.222	3.617	2.171	3.763	2.117	3.942	2.059	4.164
2.17	2.952	2.136	3.019	2.098	3.097	2.058	3.191	2.014	3.304	1.968	3.44	1.918	3.607
1.942	2.539	1.915	2.588	1.885	2.645	1.853	2.712	1.818	2.792	1.78	2.888	1.74	3.004
1.786	2.274	1.763	2.313	1.738	2.358	1.711	2.411	1.681	2.473	1.649	2.548	1.615	2.637
1.626	2.016	1.607	2.047	1.587	2.082	1.564	2.123	1.54	2.17	1.513	2.227	1.484	2.294
1.463	1.767	1.448	1.789	1.431	1.816	1.413	1.847	1.393	1.882	1.371	1.924	1.348	1.973
1.295	1.524	1.284	1.541	1.271	1.56	1.257	1.582	1.241	1.608	1.224	1.638	1.206	1.673
1.124	1.288	1.115	1.3	1.106	1.313	1.095	1.328	1.083	1.346	1.071	1.367	1.057	1.39
0.948	1.058	0.942	1.066	0.935	1.075	0.928	1.085	0.92	1.096	0.911	1.109	0.901	1.125
0.768	0.835	0.764	0.84	0.76	0.845	0.755	0.851	0.75	0.858	0.744	0.865	0.738	0.874
0.583	0.618	0.581	0.62	0.579	0.623	0.576	0.626	0.573	0.629	0.57	0.633	0.567	0.638



Focal Length 75 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8	3.2	3.5	4
Hyperfocal Distance (m)	107.252	100.338	89.407	79.669	70.994	63.265	56.379

T/No	2.1		2.2		2.5		2.8		3.2		3.5		4	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	107.165	Infinity	100.253	Infinity	89.324	Infinity	79.588	Infinity	70.914	Infinity	63.186	Infinity	56.301	Infinity
30.00	23.478	41.562	23.131	42.698	22.501	45.034	21.833	47.982	21.13	51.787	20.392	56.85	19.624	63.858
15.00	13.183	17.402	13.074	17.597	12.872	17.978	12.652	18.426	12.414	18.957	12.158	19.591	11.882	20.355
10.00	9.164	11.005	9.112	11.082	9.014	11.231	8.906	11.403	8.789	11.602	8.661	11.835	8.521	12.107
8.00	7.459	8.627	7.424	8.673	7.36	8.764	7.288	8.868	7.21	8.987	7.124	9.125	7.03	9.285
7.00	6.584	7.473	6.557	7.508	6.507	7.575	6.451	7.652	6.39	7.741	6.322	7.843	6.248	7.96
6.00	5.693	6.342	5.673	6.367	5.636	6.415	5.594	6.47	5.548	6.533	5.498	6.605	5.442	6.688
5.00	4.787	5.233	4.773	5.25	4.746	5.283	4.717	5.32	4.685	5.362	4.649	5.41	4.609	5.465
4.50	4.327	4.687	4.316	4.701	4.295	4.727	4.271	4.756	4.244	4.789	4.215	4.827	4.183	4.871
4.00	3.864	4.146	3.855	4.157	3.838	4.177	3.819	4.2	3.798	4.225	3.775	4.255	3.749	4.288
3.50	3.396	3.61	3.389	3.618	3.376	3.633	3.362	3.65	3.346	3.67	3.328	3.692	3.308	3.717
3.00	2.924	3.08	2.919	3.086	2.91	3.096	2.899	3.109	2.887	3.122	2.874	3.138	2.859	3.156
2.75	2.687	2.816	2.682	2.821	2.674	2.83	2.665	2.84	2.655	2.852	2.644	2.865	2.632	2.88
2.50	2.448	2.554	2.445	2.558	2.438	2.565	2.43	2.574	2.422	2.583	2.413	2.594	2.403	2.606
2.20	2.16	2.241	2.157	2.244	2.152	2.25	2.147	2.256	2.14	2.263	2.133	2.271	2.125	2.28
2.00	1.967	2.034	1.965	2.036	1.961	2.041	1.956	2.046	1.951	2.052	1.945	2.058	1.939	2.065
1.80	1.774	1.827	1.772	1.829	1.769	1.832	1.765	1.836	1.761	1.841	1.756	1.846	1.751	1.852
1.60	1.58	1.621	1.578	1.622	1.576	1.625	1.573	1.628	1.569	1.632	1.566	1.636	1.562	1.64
1.40	1.385	1.416	1.384	1.417	1.382	1.419	1.38	1.421	1.377	1.424	1.374	1.427	1.371	1.43
1.20	1.189	1.211	1.188	1.212	1.187	1.213	1.185	1.215	1.184	1.217	1.182	1.219	1.179	1.221
1.10	1.091	1.109	1.09	1.11	1.089	1.111	1.088	1.112	1.086	1.114	1.085	1.116	1.083	1.118
1.00	0.993	1.007	0.992	1.008	0.991	1.009	0.99	1.01	0.989	1.011	0.988	1.013	0.986	1.014
0.90	0.894	0.906	0.894	0.906	0.893	0.907	0.892	0.908	0.891	0.909	0.89	0.91	0.889	0.911
0.80	0.796	0.804	0.795	0.805	0.795	0.805	0.794	0.806	0.793	0.807	0.793	0.808	0.792	0.808
0.75	0.746	0.754	0.746	0.754	0.746	0.755	0.745	0.755	0.744	0.756	0.744	0.756	0.743	0.757



4.5	5	5.6	6.3	7.1	8	9	10
50.245	44.78	39.911	35.573	31.708	28.266	25.198	22.466

4.5		5		5.6		6.3		7.1		8		9		10	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
50.167	Infinity	44.703	Infinity	39.834	Infinity	35.497	Infinity	31.632	Infinity	28.19	Infinity	25.123	Infinity	22.39	Infinity
18.827	74.118	18.008	90.432	17.169	120.121	16.316	190.268	15.455	552.807	14.591	Infinity	13.73	Infinity	12.877	Infinity
11.588	21.287	11.274	22.441	10.942	23.895	10.592	25.771	10.225	28.262	9.842	31.704	9.446	36.727	9.037	44.68
8.37	12.428	8.206	12.81	8.03	13.267	7.841	13.821	7.64	14.502	7.426	15.35	7.199	16.43	6.961	17.839
6.927	9.472	6.815	9.691	6.694	9.949	6.563	10.255	6.422	10.623	6.271	11.068	6.11	11.616	5.938	12.299
6.167	8.096	6.079	8.255	5.983	8.441	5.878	8.659	5.765	8.919	5.644	9.229	5.514	9.605	5.374	10.066
5.381	6.783	5.314	6.893	5.24	7.021	5.161	7.171	5.074	7.347	4.98	7.556	4.879	7.804	4.77	8.104
4.566	5.528	4.518	5.6	4.465	5.684	4.407	5.781	4.344	5.894	4.276	6.026	4.202	6.182	4.121	6.367
4.147	4.92	4.107	4.977	4.064	5.043	4.016	5.119	3.964	5.207	3.908	5.309	3.846	5.429	3.779	5.571
3.72	4.326	3.689	4.37	3.654	4.42	3.616	4.478	3.574	4.545	3.528	4.622	3.478	4.712	3.423	4.818
3.286	3.745	3.261	3.778	3.234	3.815	3.204	3.857	3.172	3.906	3.136	3.963	3.096	4.028	3.053	4.104
2.843	3.176	2.825	3.199	2.805	3.226	2.782	3.256	2.758	3.29	2.731	3.33	2.702	3.375	2.669	3.428
2.618	2.896	2.603	2.915	2.586	2.937	2.567	2.962	2.547	2.99	2.524	3.022	2.499	3.059	2.471	3.102
2.391	2.619	2.379	2.635	2.365	2.652	2.349	2.672	2.332	2.695	2.313	2.721	2.292	2.751	2.269	2.785
2.117	2.291	2.107	2.302	2.096	2.315	2.084	2.33	2.071	2.347	2.056	2.367	2.04	2.389	2.022	2.415
1.932	2.074	1.924	2.083	1.915	2.094	1.905	2.106	1.894	2.12	1.881	2.135	1.868	2.153	1.853	2.174
1.745	1.859	1.739	1.866	1.731	1.875	1.723	1.884	1.714	1.895	1.705	1.907	1.694	1.921	1.681	1.937
1.557	1.645	1.552	1.651	1.546	1.658	1.54	1.665	1.533	1.673	1.525	1.683	1.517	1.693	1.507	1.706
1.368	1.434	1.364	1.438	1.36	1.443	1.355	1.448	1.35	1.454	1.344	1.461	1.337	1.469	1.33	1.478
1.177	1.224	1.174	1.227	1.171	1.23	1.168	1.234	1.164	1.239	1.16	1.243	1.155	1.249	1.15	1.255
1.081	1.12	1.079	1.122	1.076	1.125	1.073	1.128	1.07	1.132	1.067	1.136	1.063	1.14	1.058	1.145
0.985	1.016	0.983	1.018	0.981	1.02	0.978	1.023	0.976	1.025	0.973	1.029	0.97	1.032	0.966	1.036
0.888	0.912	0.886	0.914	0.885	0.916	0.883	0.918	0.881	0.92	0.879	0.923	0.876	0.925	0.873	0.929
0.791	0.809	0.79	0.811	0.788	0.812	0.787	0.813	0.785	0.815	0.784	0.817	0.782	0.819	0.78	0.822
0.742	0.758	0.741	0.759	0.74	0.76	0.739	0.762	0.737	0.763	0.736	0.765	0.734	0.766	0.732	0.769



11	13	14	16	18	20	22
20.031	17.862	15.93	14.209	12.675	11.309	10.092

11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
19.956	Infinity	17.787	Infinity	15.855	Infinity	14.133	Infinity	12.6	Infinity	11.234	Infinity	10.016	Infinity
12.039	Infinity	11.22	Infinity	10.425	Infinity	9.657	Infinity	8.921	Infinity	8.219	Infinity	7.552	Infinity
8.619	59.041	8.194	92.412	7.765	253.231	7.334	Infinity	6.905	Infinity	6.479	Infinity	6.061	Infinity
6.713	19.742	6.454	22.429	6.187	26.479	5.912	33.22	5.632	46.532	5.348	84.67	5.061	1077.711
5.757	13.168	5.567	14.305	5.368	15.841	5.161	18.015	4.948	21.301	4.728	26.793	4.504	37.73
5.226	10.638	5.069	11.365	4.905	12.309	4.732	13.577	4.553	15.354	4.367	18.003	4.176	22.336
4.654	8.469	4.53	8.92	4.398	9.488	4.26	10.22	4.114	11.189	3.963	12.525	3.806	14.466
4.035	6.588	3.942	6.856	3.843	7.184	3.737	7.592	3.626	8.11	3.509	8.783	3.386	9.688
3.706	5.738	3.628	5.939	3.544	6.183	3.455	6.481	3.36	6.853	3.26	7.325	3.154	7.94
3.364	4.942	3.3	5.089	3.231	5.265	3.157	5.479	3.078	5.74	2.994	6.066	2.905	6.478
3.007	4.193	2.956	4.298	2.901	4.422	2.841	4.57	2.778	4.749	2.71	4.968	2.637	5.239
2.634	3.489	2.595	3.56	2.553	3.644	2.508	3.743	2.458	3.861	2.406	4.002	2.349	4.174
2.441	3.152	2.408	3.21	2.372	3.277	2.333	3.356	2.291	3.45	2.245	3.561	2.196	3.696
2.244	2.825	2.216	2.87	2.186	2.924	2.153	2.986	2.117	3.059	2.079	3.146	2.037	3.25
2.002	2.444	1.98	2.478	1.956	2.517	1.93	2.562	1.902	2.615	1.871	2.677	1.837	2.751
1.836	2.197	1.818	2.224	1.798	2.255	1.777	2.291	1.753	2.333	1.727	2.382	1.698	2.439
1.668	1.956	1.653	1.977	1.637	2.001	1.619	2.029	1.6	2.061	1.578	2.099	1.555	2.143
1.497	1.72	1.485	1.736	1.472	1.754	1.458	1.775	1.442	1.799	1.425	1.827	1.406	1.86
1.322	1.489	1.313	1.5	1.303	1.514	1.292	1.529	1.28	1.546	1.267	1.567	1.252	1.59
1.144	1.263	1.137	1.271	1.13	1.28	1.122	1.29	1.113	1.303	1.104	1.316	1.093	1.332
1.053	1.151	1.048	1.158	1.042	1.165	1.035	1.174	1.028	1.184	1.02	1.195	1.011	1.208
0.962	1.041	0.958	1.046	0.953	1.052	0.947	1.059	0.941	1.067	0.935	1.076	0.927	1.086
0.87	0.932	0.867	0.936	0.863	0.941	0.858	0.946	0.854	0.952	0.848	0.959	0.842	0.967
0.777	0.824	0.774	0.827	0.771	0.831	0.768	0.835	0.764	0.839	0.76	0.845	0.756	0.85
0.73	0.771	0.728	0.774	0.725	0.777	0.723	0.78	0.719	0.784	0.716	0.788	0.712	0.793



Focal Length 90 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8	3.2	3.5	4
Hyperfocal Distance (m)	157.575	147.412	131.346	117.033	104.282	92.922	82.801

T/No	2.1		2.2		2.5		2.8		3.2		3.5		4	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	157.459	Infinity	147.3	Infinity	131.238	Infinity	116.929	Infinity	104.18	Infinity	92.822	Infinity	82.703	Infinity
30.00	25.229	37.003	24.955	37.609	24.452	38.815	23.911	40.265	23.331	42.027	22.714	44.199	22.058	46.92
15.00	13.713	16.555	13.632	16.674	13.482	16.906	13.317	17.173	13.136	17.483	12.94	17.845	12.726	18.27
10.00	9.415	10.663	9.377	10.712	9.307	10.806	9.228	10.914	9.142	11.037	9.047	11.18	8.943	11.343
8.00	7.623	8.416	7.599	8.446	7.552	8.505	7.501	8.571	7.444	8.647	7.381	8.733	7.312	8.832
7.00	6.711	7.315	6.692	7.338	6.656	7.382	6.616	7.431	6.572	7.488	6.523	7.552	6.47	7.626
6.00	5.788	6.229	5.773	6.245	5.747	6.277	5.717	6.312	5.685	6.353	5.648	6.399	5.608	6.452
5.00	4.853	5.157	4.843	5.168	4.824	5.189	4.804	5.213	4.781	5.241	4.755	5.272	4.727	5.307
4.50	4.381	4.626	4.373	4.635	4.358	4.652	4.341	4.671	4.322	4.693	4.302	4.718	4.278	4.746
4.00	3.906	4.099	3.9	4.105	3.888	4.119	3.875	4.134	3.86	4.151	3.843	4.17	3.825	4.192
3.50	3.429	3.575	3.424	3.58	3.415	3.59	3.404	3.601	3.393	3.614	3.38	3.628	3.366	3.645
3.00	2.948	3.054	2.944	3.058	2.938	3.065	2.93	3.073	2.922	3.082	2.913	3.093	2.902	3.105
2.75	2.706	2.795	2.704	2.798	2.698	2.804	2.692	2.811	2.685	2.819	2.677	2.827	2.668	2.837
2.50	2.464	2.537	2.462	2.539	2.457	2.544	2.452	2.55	2.446	2.556	2.44	2.563	2.433	2.571
2.20	2.173	2.228	2.171	2.23	2.167	2.234	2.163	2.238	2.159	2.243	2.154	2.248	2.148	2.254
2.00	1.978	2.023	1.976	2.025	1.973	2.028	1.97	2.031	1.966	2.035	1.962	2.039	1.958	2.044
1.80	1.782	1.818	1.781	1.82	1.779	1.822	1.776	1.825	1.773	1.828	1.77	1.831	1.766	1.835
1.60	1.586	1.614	1.585	1.615	1.583	1.617	1.581	1.619	1.579	1.622	1.576	1.624	1.574	1.627
1.40	1.39	1.411	1.389	1.411	1.387	1.413	1.386	1.414	1.384	1.416	1.382	1.418	1.38	1.42
1.20	1.193	1.208	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.212	1.187	1.213	1.186	1.215
1.10	1.094	1.106	1.093	1.107	1.093	1.108	1.092	1.108	1.091	1.109	1.09	1.111	1.088	1.112
1.00	0.995	1.005	0.995	1.005	0.994	1.006	0.993	1.007	0.992	1.008	0.992	1.009	0.991	1.01
0.90	0.896	0.904	0.896	0.904	0.895	0.905	0.895	0.905	0.894	0.906	0.893	0.907	0.893	0.908
0.85	0.847	0.853	0.846	0.854	0.846	0.854	0.845	0.855	0.845	0.855	0.844	0.856	0.843	0.857



4.5	5	5.6	6.3	7.1	8	9	10
73.784	65.751	58.594	52.219	46.539	41.478	36.97	32.953

4.5		5		5.6		6.3		7.1		8		9		10	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
73.688	Infinity	65.656	Infinity	58.5	Infinity	52.125	Infinity	46.446	Infinity	41.386	Infinity	36.878	Infinity	32.861	Infinity
21.366	50.405	20.639	54.989	19.88	61.244	19.093	70.209	18.28	84.019	17.446	107.835	16.597	158.181	15.738	332.504
12.494	18.772	12.244	19.368	11.975	20.086	11.686	20.957	11.379	22.03	11.053	23.373	10.708	25.091	10.346	27.349
8.828	11.533	8.704	11.754	8.568	12.013	8.42	12.317	8.261	12.677	8.088	13.107	7.904	13.627	7.706	14.261
7.236	8.946	7.152	9.078	7.061	9.23	6.961	9.408	6.852	9.615	6.734	9.859	6.606	10.149	6.468	10.495
6.41	7.711	6.345	7.808	6.273	7.92	6.194	8.05	6.108	8.201	6.015	8.377	5.913	8.584	5.803	8.829
5.564	6.512	5.514	6.581	5.46	6.66	5.401	6.751	5.336	6.856	5.265	6.978	5.187	7.12	5.102	7.287
4.695	5.348	4.661	5.394	4.622	5.446	4.58	5.506	4.533	5.576	4.482	5.655	4.426	5.748	4.365	5.855
4.253	4.778	4.225	4.815	4.193	4.856	4.158	4.904	4.12	4.958	4.078	5.021	4.032	5.093	3.981	5.177
3.805	4.217	3.782	4.245	3.757	4.277	3.729	4.314	3.699	4.356	3.665	4.404	3.628	4.459	3.587	4.523
3.351	3.663	3.333	3.685	3.314	3.709	3.293	3.736	3.269	3.767	3.243	3.803	3.214	3.843	3.182	3.89
2.891	3.118	2.878	3.133	2.864	3.15	2.848	3.17	2.83	3.192	2.811	3.217	2.789	3.246	2.766	3.279
2.659	2.848	2.648	2.861	2.636	2.875	2.623	2.891	2.608	2.909	2.591	2.93	2.573	2.954	2.553	2.981
2.425	2.58	2.416	2.59	2.406	2.602	2.395	2.615	2.383	2.63	2.369	2.646	2.354	2.666	2.338	2.687
2.142	2.261	2.135	2.269	2.128	2.277	2.119	2.287	2.11	2.298	2.099	2.311	2.088	2.326	2.075	2.342
1.953	2.05	1.947	2.056	1.941	2.063	1.934	2.071	1.926	2.08	1.917	2.09	1.908	2.102	1.897	2.115
1.762	1.84	1.758	1.845	1.753	1.85	1.747	1.857	1.741	1.864	1.734	1.872	1.726	1.881	1.717	1.892
1.57	1.631	1.567	1.635	1.563	1.639	1.559	1.644	1.554	1.649	1.548	1.656	1.542	1.663	1.535	1.671
1.378	1.423	1.375	1.426	1.372	1.429	1.369	1.433	1.365	1.437	1.361	1.441	1.356	1.447	1.351	1.453
1.184	1.216	1.182	1.218	1.18	1.221	1.178	1.223	1.175	1.226	1.172	1.229	1.169	1.233	1.165	1.237
1.087	1.113	1.085	1.115	1.084	1.117	1.082	1.119	1.079	1.122	1.077	1.124	1.074	1.127	1.071	1.131
0.989	1.011	0.988	1.012	0.987	1.014	0.985	1.015	0.983	1.017	0.981	1.02	0.979	1.022	0.977	1.025
0.892	0.909	0.891	0.91	0.889	0.911	0.888	0.912	0.887	0.914	0.885	0.915	0.883	0.917	0.881	0.919
0.843	0.857	0.842	0.858	0.841	0.859	0.84	0.861	0.838	0.862	0.837	0.863	0.835	0.865	0.834	0.867



11	13	14	16	18	20	22
29.375	26.187	23.347	20.817	18.563	16.554	14.765

11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
29.283	Infinity	26.096	Infinity	23.256	Infinity	20.726	Infinity	18.471	Infinity	16.463	Infinity	14.674	Infinity
14.874	Infinity	14.011	Infinity	13.155	Infinity	12.311	Infinity	11.485	Infinity	10.68	Infinity	9.903	Infinity
9.969	30.423	9.576	34.818	9.171	41.561	8.756	53.114	8.332	77.229	7.904	157.622	7.473	Infinity
7.496	15.048	7.274	16.042	7.039	17.328	6.794	19.042	6.538	21.422	6.273	24.922	6	30.524
6.321	10.912	6.162	11.423	5.994	12.056	5.816	12.857	5.629	13.893	5.432	15.277	5.228	17.201
5.684	9.121	5.556	9.474	5.42	9.904	5.274	10.435	5.12	11.105	4.958	11.968	4.787	13.113
5.011	7.484	4.912	7.718	4.805	8	4.691	8.341	4.57	8.761	4.441	9.287	4.304	9.957
4.298	5.981	4.226	6.128	4.147	6.303	4.063	6.512	3.972	6.763	3.875	7.069	3.771	7.448
3.926	5.275	3.866	5.388	3.8	5.522	3.729	5.681	3.653	5.87	3.571	6.098	3.483	6.377
3.542	4.596	3.494	4.682	3.44	4.782	3.383	4.9	3.32	5.039	3.253	5.205	3.18	5.405
3.147	3.944	3.109	4.006	3.067	4.079	3.021	4.163	2.972	4.263	2.918	4.38	2.86	4.52
2.74	3.317	2.711	3.36	2.679	3.41	2.645	3.469	2.607	3.536	2.566	3.616	2.522	3.71
2.531	3.012	2.507	3.047	2.48	3.088	2.45	3.136	2.418	3.191	2.383	3.255	2.345	3.33
2.319	2.712	2.299	2.741	2.276	2.774	2.252	2.812	2.225	2.855	2.195	2.906	2.163	2.965
2.06	2.361	2.045	2.382	2.027	2.406	2.008	2.434	1.987	2.467	1.963	2.504	1.938	2.547
1.885	2.13	1.872	2.148	1.857	2.167	1.841	2.19	1.824	2.216	1.804	2.245	1.783	2.28
1.708	1.903	1.697	1.917	1.685	1.932	1.672	1.95	1.658	1.97	1.642	1.993	1.624	2.02
1.528	1.68	1.519	1.69	1.51	1.702	1.5	1.715	1.488	1.731	1.476	1.748	1.462	1.768
1.345	1.459	1.339	1.467	1.332	1.476	1.324	1.486	1.315	1.497	1.306	1.51	1.295	1.524
1.161	1.242	1.156	1.247	1.151	1.254	1.145	1.26	1.139	1.268	1.132	1.277	1.124	1.287
1.068	1.135	1.064	1.139	1.059	1.144	1.055	1.15	1.049	1.156	1.044	1.163	1.037	1.172
0.974	1.028	0.971	1.031	0.967	1.035	0.963	1.04	0.959	1.045	0.954	1.051	0.949	1.057
0.879	0.922	0.877	0.925	0.874	0.928	0.871	0.931	0.868	0.935	0.864	0.94	0.86	0.945
0.832	0.869	0.83	0.872	0.827	0.874	0.824	0.877	0.821	0.881	0.818	0.885	0.814	0.889



Focal Length 50 mm

Circle of Confusion 0.025 mm

T/No	1	1.1	1.2	1.4	1.6	1.8	2
Hyperfocal Distance (m)	110.828	98.747	87.985	78.396	69.854	62.244	55.464

T/No	1		1.1		1.2		1.4		1.6		1.8		2	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	110.763	Infinity	98.685	Infinity	87.924	Infinity	78.338	Infinity	69.797	Infinity	62.187	Infinity	55.408	Infinity
30.00	23.631	41.081	23.033	43.028	22.396	45.446	21.722	48.506	21.013	52.473	20.27	57.777	19.496	65.173
15.00	13.226	17.325	13.038	17.661	12.832	18.053	12.609	18.515	12.368	19.062	12.108	19.716	11.829	20.507
10.00	9.183	10.977	9.092	11.11	8.992	11.264	8.883	11.441	8.763	11.646	8.632	11.886	8.49	12.168
8.00	7.47	8.611	7.41	8.692	7.344	8.786	7.271	8.893	7.191	9.016	7.103	9.158	7.007	9.324
7.00	6.592	7.462	6.545	7.523	6.494	7.593	6.437	7.672	6.374	7.763	6.305	7.869	6.229	7.99
6.00	5.699	6.335	5.664	6.379	5.625	6.428	5.583	6.485	5.536	6.55	5.484	6.625	5.427	6.71
5.00	4.79	5.229	4.766	5.259	4.738	5.293	4.708	5.331	4.675	5.374	4.638	5.424	4.597	5.481
4.50	4.33	4.684	4.31	4.708	4.288	4.735	4.263	4.765	4.236	4.8	4.205	4.839	4.172	4.885
4.00	3.865	4.144	3.85	4.163	3.832	4.184	3.812	4.207	3.791	4.234	3.767	4.265	3.74	4.3
3.50	3.397	3.609	3.385	3.623	3.371	3.639	3.356	3.657	3.339	3.677	3.321	3.7	3.3	3.726
3.00	2.925	3.079	2.916	3.089	2.906	3.101	2.894	3.114	2.882	3.128	2.868	3.145	2.853	3.163
2.75	2.687	2.816	2.679	2.825	2.671	2.834	2.661	2.845	2.651	2.857	2.639	2.87	2.626	2.886
2.50	2.448	2.554	2.442	2.561	2.435	2.569	2.427	2.578	2.418	2.587	2.409	2.599	2.398	2.611
2.20	2.16	2.242	2.155	2.247	2.15	2.253	2.144	2.259	2.137	2.267	2.13	2.275	2.121	2.285
2.00	1.967	2.034	1.963	2.038	1.959	2.043	1.954	2.049	1.948	2.055	1.942	2.062	1.935	2.069
1.80	1.773	1.827	1.77	1.831	1.767	1.835	1.763	1.839	1.758	1.844	1.753	1.849	1.748	1.856
1.60	1.579	1.621	1.577	1.624	1.574	1.627	1.571	1.63	1.567	1.634	1.563	1.638	1.559	1.643
1.40	1.384	1.416	1.382	1.418	1.38	1.42	1.378	1.423	1.375	1.426	1.372	1.429	1.369	1.433
1.20	1.189	1.212	1.187	1.213	1.186	1.215	1.184	1.216	1.182	1.218	1.18	1.221	1.178	1.223
1.00	0.992	1.008	0.991	1.009	0.99	1.01	0.989	1.011	0.988	1.012	0.986	1.014	0.985	1.016
0.80	0.795	0.805	0.795	0.805	0.794	0.806	0.793	0.807	0.793	0.808	0.792	0.809	0.791	0.81
0.60	0.598	0.603	0.597	0.603	0.597	0.603	0.596	0.604	0.596	0.604	0.596	0.604	0.595	0.605
0.50	0.498	0.502	0.498	0.502	0.498	0.502	0.498	0.502	0.497	0.503	0.497	0.503	0.497	0.503



2.2	2.5	2.8	3.2	3.5	4	4.5	5
49.423	44.042	39.248	34.977	31.171	27.781	24.761	22.071

2.2		2.5		2.8		3.2		3.5		4		4.5		5	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
49.368	Infinity	43.987	Infinity	39.194	Infinity	34.923	Infinity	31.118	Infinity	27.728	Infinity	24.708	Infinity	22.018	Infinity
18.695	76.111	17.871	93.782	17.029	126.848	16.174	209.966	15.311	794.526	14.446	Infinity	13.585	Infinity	12.734	Infinity
11.531	21.473	11.213	22.672	10.878	24.189	10.524	26.154	10.153	28.778	9.767	32.433	9.368	37.827	8.957	46.513
8.336	12.5	8.17	12.895	7.991	13.369	7.799	13.946	7.595	14.655	7.378	15.542	7.149	16.676	6.908	18.164
6.902	9.517	6.788	9.743	6.664	10.011	6.531	10.329	6.388	10.712	6.234	11.177	6.07	11.749	5.896	12.466
6.147	8.131	6.056	8.295	5.958	8.488	5.851	8.715	5.736	8.985	5.613	9.309	5.48	9.702	5.338	10.184
5.364	6.809	5.295	6.923	5.22	7.057	5.139	7.212	5.05	7.396	4.954	7.613	4.851	7.872	4.74	8.186
4.552	5.546	4.503	5.622	4.449	5.709	4.39	5.81	4.325	5.928	4.255	6.066	4.179	6.228	4.097	6.422
4.135	4.936	4.095	4.996	4.05	5.064	4.001	5.143	3.948	5.235	3.889	5.342	3.826	5.467	3.757	5.615
3.71	4.339	3.678	4.385	3.642	4.438	3.602	4.498	3.559	4.568	3.512	4.648	3.46	4.743	3.404	4.853
3.277	3.756	3.252	3.79	3.224	3.829	3.193	3.873	3.159	3.924	3.122	3.984	3.082	4.052	3.037	4.132
2.836	3.185	2.817	3.209	2.796	3.236	2.773	3.268	2.748	3.304	2.72	3.346	2.689	3.394	2.656	3.449
2.612	2.904	2.596	2.924	2.579	2.946	2.559	2.972	2.538	3.002	2.514	3.036	2.488	3.076	2.459	3.121
2.386	2.626	2.373	2.642	2.358	2.66	2.342	2.681	2.324	2.705	2.304	2.733	2.282	2.765	2.258	2.801
2.112	2.296	2.102	2.308	2.09	2.322	2.078	2.338	2.064	2.356	2.048	2.377	2.031	2.401	2.012	2.428
1.928	2.078	1.919	2.088	1.91	2.1	1.899	2.113	1.887	2.127	1.874	2.144	1.86	2.163	1.844	2.185
1.742	1.863	1.735	1.871	1.727	1.88	1.718	1.89	1.709	1.902	1.699	1.915	1.687	1.93	1.674	1.947
1.554	1.649	1.549	1.655	1.543	1.662	1.536	1.67	1.528	1.679	1.52	1.689	1.511	1.701	1.501	1.714
1.365	1.437	1.361	1.441	1.356	1.447	1.351	1.452	1.346	1.459	1.339	1.467	1.332	1.475	1.324	1.485
1.175	1.226	1.172	1.23	1.168	1.233	1.165	1.238	1.161	1.242	1.156	1.248	1.151	1.254	1.145	1.261
0.983	1.018	0.981	1.02	0.979	1.022	0.976	1.025	0.973	1.028	0.97	1.032	0.966	1.036	0.962	1.041
0.789	0.811	0.788	0.812	0.787	0.814	0.785	0.815	0.783	0.817	0.781	0.82	0.779	0.822	0.777	0.825
0.594	0.606	0.594	0.606	0.593	0.607	0.592	0.608	0.591	0.609	0.59	0.61	0.589	0.611	0.588	0.613
0.496	0.504	0.496	0.504	0.495	0.505	0.495	0.505	0.494	0.506	0.494	0.507	0.493	0.507	0.492	0.508



5.6	6.3	7.1	8	9	10	11	13
19.674	17.538	15.635	13.94	12.43	11.085	9.886	8.819

5.6		6.3		7.1		8		9		10		11		13	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
19.621	Infinity	17.485	Infinity	15.583	Infinity	13.888	Infinity	12.378	Infinity	11.032	Infinity	9.834	Infinity	8.766	Infinity
11.897	Infinity	11.081	Infinity	10.289	Infinity	9.525	Infinity	8.793	Infinity	8.095	Infinity	7.433	Infinity	6.809	Infinity
8.537	62.676	8.11	102.794	7.679	365.694	7.248	Infinity	6.818	Infinity	6.393	Infinity	5.975	Infinity	5.567	Infinity
6.657	20.187	6.395	23.073	6.126	27.487	5.849	35.009	5.567	50.549	5.282	100.831	4.995	Infinity	4.708	Infinity
5.713	13.383	5.52	14.588	5.319	16.23	5.11	18.578	4.894	22.184	4.673	28.369	4.447	41.311	4.219	84.763
5.188	10.786	5.029	11.553	4.861	12.557	4.687	13.914	4.505	15.836	4.317	18.746	4.125	23.624	3.928	33.385
4.621	8.569	4.495	9.045	4.361	9.646	4.221	10.424	4.073	11.463	3.92	12.909	3.761	15.039	3.597	18.463
4.008	6.654	3.913	6.936	3.812	7.283	3.705	7.715	3.591	8.267	3.472	8.989	3.347	9.968	3.218	11.357
3.683	5.792	3.603	6.003	3.517	6.26	3.426	6.576	3.329	6.971	3.226	7.476	3.119	8.138	3.006	9.038
3.343	4.984	3.277	5.139	3.207	5.325	3.131	5.551	3.05	5.829	2.964	6.177	2.873	6.62	2.778	7.2
2.989	4.226	2.936	4.337	2.88	4.468	2.819	4.625	2.753	4.815	2.684	5.048	2.609	5.339	2.531	5.708
2.619	3.514	2.579	3.589	2.535	3.678	2.488	3.783	2.438	3.908	2.383	4.06	2.325	4.244	2.263	4.472
2.428	3.173	2.393	3.235	2.356	3.306	2.315	3.39	2.272	3.49	2.224	3.61	2.174	3.754	2.12	3.931
2.232	2.843	2.203	2.892	2.172	2.948	2.137	3.015	2.1	3.093	2.06	3.186	2.017	3.297	1.97	3.432
1.991	2.459	1.968	2.495	1.944	2.537	1.916	2.585	1.887	2.642	1.854	2.709	1.819	2.789	1.782	2.883
1.827	2.21	1.808	2.239	1.787	2.272	1.764	2.311	1.739	2.356	1.712	2.409	1.682	2.471	1.65	2.545
1.66	1.967	1.644	1.989	1.627	2.016	1.608	2.046	1.587	2.081	1.565	2.121	1.54	2.169	1.514	2.225
1.489	1.729	1.477	1.746	1.463	1.766	1.448	1.789	1.431	1.815	1.413	1.846	1.393	1.881	1.372	1.923
1.316	1.496	1.306	1.509	1.295	1.524	1.284	1.54	1.271	1.56	1.257	1.582	1.241	1.607	1.224	1.637
1.139	1.269	1.132	1.278	1.124	1.288	1.115	1.3	1.105	1.313	1.095	1.328	1.083	1.346	1.071	1.367
0.958	1.046	0.953	1.052	0.948	1.059	0.942	1.066	0.935	1.075	0.928	1.085	0.92	1.097	0.911	1.11
0.774	0.828	0.771	0.832	0.767	0.836	0.764	0.84	0.759	0.845	0.755	0.851	0.75	0.858	0.744	0.866
0.586	0.615	0.585	0.616	0.583	0.618	0.581	0.621	0.578	0.623	0.576	0.626	0.573	0.63	0.57	0.634
0.491	0.509	0.49	0.511	0.489	0.512	0.487	0.514	0.486	0.515	0.484	0.517	0.482	0.519	0.48	0.522



14	16	18	20	22
7.867	7.02	6.265	5.592	4.993

14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
7.815	Infinity	6.967	Infinity	6.212	Infinity	5.539	Infinity	4.94	Infinity
6.224	Infinity	5.676	Infinity	5.167	Infinity	4.695	Infinity	4.259	Infinity
5.171	Infinity	4.789	Infinity	4.423	Infinity	4.074	Infinity	3.743	Infinity
4.423	Infinity	4.142	Infinity	3.866	Infinity	3.598	Infinity	3.339	Infinity
3.99	Infinity	3.76	Infinity	3.533	Infinity	3.308	Infinity	3.089	Infinity
3.729	62.325	3.528	2431.335	3.328	Infinity	3.128	Infinity	2.932	Infinity
3.43	24.813	3.26	40.448	3.089	138.689	2.917	Infinity	2.746	Infinity
3.084	13.466	2.946	17.019	2.806	24.194	2.664	46	2.521	Infinity
2.889	10.32	2.769	12.278	2.645	15.605	2.519	22.446	2.391	44.269
2.678	7.988	2.575	9.107	2.468	10.809	2.358	13.686	2.246	19.533
2.448	6.189	2.362	6.837	2.272	7.748	2.179	9.114	2.084	11.367
2.197	4.76	2.128	5.131	2.055	5.624	1.979	6.305	1.901	7.299
2.062	4.15	2.001	4.428	1.937	4.789	1.87	5.271	1.8	5.945
1.921	3.597	1.868	3.803	1.812	4.065	1.754	4.405	1.693	4.863
1.742	2.998	1.699	3.139	1.653	3.313	1.604	3.534	1.553	3.82
1.616	2.633	1.579	2.74	1.54	2.871	1.498	3.034	1.454	3.241
1.485	2.292	1.454	2.371	1.421	2.468	1.385	2.586	1.348	2.734
1.348	1.972	1.323	2.03	1.296	2.1	1.267	2.184	1.235	2.287
1.206	1.672	1.186	1.713	1.164	1.762	1.141	1.82	1.116	1.89
1.057	1.39	1.042	1.418	1.025	1.451	1.007	1.489	0.988	1.535
0.901	1.125	0.89	1.143	0.878	1.163	0.866	1.187	0.852	1.215
0.738	0.875	0.731	0.885	0.723	0.897	0.715	0.91	0.706	0.926
0.566	0.638	0.563	0.643	0.558	0.649	0.554	0.656	0.549	0.663
0.478	0.525	0.475	0.528	0.472	0.532	0.469	0.536	0.466	0.54