



Focal Length 90 mm

Circle of Confusion 0.025 mm

T/No	2.2	2.5	2.8	3.2	3.5	4	4.5
Hyperfocal Distance (m)	146.207	130.276	116.082	103.437	92.172	82.136	73.194

T/No	2.2		2.5		2.8		3.2		3.5		4		4.5	
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	146.096	Infinity	130.169	Infinity	115.979	Infinity	103.336	Infinity	92.073	Infinity	82.038	Infinity	73.099	Infinity
50	37.304	75.845	36.18	80.974	34.996	87.627	33.757	96.53	32.466	108.96	31.131	127.374	29.757	157.201
30	24.928	37.675	24.423	38.894	23.88	40.361	23.298	42.145	22.678	44.345	22.021	47.107	21.327	50.648
20	17.621	23.127	17.368	23.578	17.093	24.107	16.794	24.729	16.471	25.467	16.123	26.35	15.749	27.418
15	13.626	16.684	13.475	16.917	13.31	17.186	13.129	17.498	12.931	17.863	12.717	18.291	12.484	18.797
12	11.108	13.049	11.008	13.19	10.898	13.352	10.777	13.539	10.644	13.756	10.499	14.007	10.341	14.3
10	9.376	10.714	9.305	10.809	9.226	10.917	9.139	11.041	9.044	11.184	8.94	11.349	8.825	11.54
9	8.493	9.573	8.434	9.648	8.37	9.734	8.299	9.832	8.221	9.945	8.134	10.074	8.04	10.224
8	7.598	8.447	7.552	8.506	7.5	8.572	7.443	8.648	7.38	8.735	7.311	8.834	7.235	8.949
7	6.692	7.338	6.656	7.382	6.616	7.432	6.572	7.489	6.523	7.553	6.469	7.627	6.41	7.712
6	5.774	6.245	5.747	6.277	5.717	6.312	5.685	6.353	5.648	6.399	5.608	6.452	5.564	6.512
5.5	5.31	5.704	5.288	5.731	5.263	5.76	5.235	5.794	5.204	5.832	5.17	5.875	5.133	5.925
5	4.843	5.168	4.825	5.189	4.804	5.213	4.781	5.24	4.756	5.271	4.727	5.307	4.696	5.347
4.5	4.373	4.634	4.358	4.651	4.342	4.671	4.323	4.692	4.302	4.717	4.279	4.745	4.254	4.777
4	3.9	4.105	3.889	4.118	3.875	4.133	3.861	4.15	3.844	4.169	3.826	4.191	3.806	4.216
3.5	3.424	3.579	3.415	3.589	3.405	3.601	3.394	3.613	3.381	3.628	3.367	3.644	3.352	3.662
3	2.945	3.057	2.938	3.064	2.931	3.073	2.923	3.082	2.913	3.092	2.903	3.104	2.892	3.117
2.7	2.656	2.746	2.65	2.752	2.644	2.758	2.638	2.765	2.63	2.773	2.622	2.783	2.613	2.793
2.5	2.462	2.539	2.458	2.544	2.453	2.549	2.447	2.555	2.441	2.562	2.434	2.57	2.426	2.579
2.4	2.365	2.436	2.361	2.44	2.357	2.445	2.351	2.451	2.346	2.457	2.339	2.464	2.332	2.472
2.3	2.268	2.333	2.265	2.337	2.26	2.341	2.256	2.346	2.25	2.352	2.244	2.359	2.238	2.366
2.2	2.171	2.23	2.168	2.233	2.164	2.237	2.16	2.242	2.155	2.247	2.149	2.253	2.143	2.26
2.1	2.074	2.127	2.071	2.13	2.067	2.134	2.063	2.138	2.059	2.143	2.054	2.148	2.049	2.154
2	1.977	2.024	1.974	2.027	1.97	2.03	1.967	2.034	1.963	2.039	1.959	2.043	1.954	2.049
1.9	1.879	1.922	1.876	1.924	1.874	1.927	1.87	1.931	1.867	1.934	1.863	1.939	1.858	1.944
1.8	1.781	1.819	1.779	1.822	1.776	1.824	1.774	1.827	1.77	1.831	1.767	1.834	1.763	1.839
1.7	1.683	1.717	1.681	1.719	1.679	1.721	1.677	1.724	1.674	1.727	1.671	1.73	1.667	1.734
1.6	1.585	1.615	1.584	1.617	1.582	1.619	1.58	1.621	1.577	1.624	1.574	1.627	1.571	1.63
1.5	1.487	1.513	1.486	1.514	1.484	1.516	1.482	1.518	1.48	1.521	1.478	1.523	1.475	1.526
1.4	1.389	1.411	1.388	1.412	1.386	1.414	1.385	1.416	1.383	1.418	1.381	1.42	1.378	1.422
1.3	1.291	1.309	1.29	1.31	1.288	1.312	1.287	1.313	1.285	1.315	1.284	1.317	1.282	1.319
1.2	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.211	1.188	1.212	1.186	1.214	1.185	1.216
1.1	1.094	1.106	1.093	1.107	1.092	1.108	1.091	1.109	1.09	1.11	1.089	1.111	1.087	1.113
1	0.995	1.005	0.994	1.006	0.994	1.006	0.993	1.007	0.992	1.008	0.991	1.009	0.99	1.01
0.9	0.896	0.904	0.896	0.904	0.895	0.905	0.894	0.906	0.894	0.906	0.893	0.907	0.892	0.908



5	5.6	6.3	7.1	8	9	10	11
65.228	58.132	51.809	46.176	41.158	36.688	32.705	29.156

5		5.6		6.3		7.1		8		9		10		11	
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)
65.134	Infinity	58.038	Infinity	51.716	Infinity	46.084	Infinity	41.066	Infinity	36.596	Infinity	32.613	Infinity	29.065	Infinity
28.354	213.278	26.928	355.777	25.49	1424.436	24.049	Infinity	22.615	Infinity	21.197	Infinity	19.804	Infinity	18.444	Infinity
20.599	55.317	19.838	61.704	19.05	70.895	18.236	85.134	17.402	109.93	16.553	163.364	15.694	359.762	14.831	Infinity
15.35	28.724	14.926	30.348	14.477	32.405	14.005	35.074	13.51	38.649	12.995	43.646	12.461	51.059	11.913	63.095
12.234	19.399	11.964	20.123	11.675	21.002	11.367	22.087	11.04	23.446	10.695	25.188	10.333	27.48	9.955	30.608
10.169	14.644	9.983	15.051	9.781	15.536	9.565	16.119	9.334	16.827	9.087	17.702	8.826	18.798	8.55	20.205
8.7	11.762	8.564	12.022	8.416	12.327	8.257	12.69	8.084	13.123	7.9	13.646	7.702	14.286	7.492	15.079
7.936	10.397	7.823	10.599	7.7	10.835	7.567	11.114	7.422	11.443	7.266	11.838	7.099	12.315	6.921	12.898
7.151	9.081	7.06	9.234	6.96	9.412	6.851	9.62	6.733	9.865	6.605	10.156	6.467	10.503	6.319	10.923
6.344	7.809	6.273	7.921	6.194	8.051	6.108	8.203	6.014	8.379	5.913	8.587	5.802	8.833	5.684	9.127
5.515	6.581	5.461	6.66	5.401	6.751	5.336	6.856	5.265	6.978	5.188	7.121	5.103	7.288	5.012	7.485
5.091	5.982	5.045	6.047	4.995	6.121	4.939	6.207	4.878	6.307	4.812	6.423	4.74	6.558	4.661	6.716
4.661	5.393	4.623	5.445	4.581	5.505	4.534	5.575	4.483	5.654	4.427	5.747	4.366	5.854	4.3	5.979
4.225	4.814	4.194	4.855	4.16	4.903	4.121	4.957	4.08	5.02	4.034	5.092	3.983	5.175	3.928	5.272
3.783	4.244	3.758	4.276	3.731	4.312	3.7	4.354	3.667	4.402	3.63	4.457	3.589	4.52	3.545	4.594
3.334	3.683	3.315	3.707	3.294	3.734	3.271	3.765	3.245	3.801	3.216	3.841	3.184	3.887	3.15	3.941
2.879	3.132	2.865	3.149	2.849	3.168	2.832	3.19	2.813	3.215	2.791	3.243	2.768	3.276	2.742	3.314
2.603	2.805	2.591	2.819	2.579	2.834	2.565	2.851	2.549	2.871	2.532	2.893	2.512	2.919	2.491	2.948
2.417	2.589	2.407	2.6	2.396	2.613	2.384	2.628	2.371	2.645	2.356	2.663	2.34	2.685	2.321	2.71
2.324	2.482	2.315	2.492	2.305	2.504	2.294	2.517	2.281	2.532	2.268	2.549	2.252	2.569	2.236	2.592
2.23	2.374	2.222	2.384	2.213	2.395	2.203	2.407	2.191	2.42	2.179	2.436	2.165	2.454	2.149	2.474
2.136	2.268	2.129	2.276	2.121	2.286	2.111	2.297	2.101	2.309	2.089	2.324	2.077	2.34	2.063	2.358
2.042	2.161	2.036	2.169	2.028	2.178	2.02	2.187	2.01	2.199	2	2.211	1.988	2.226	1.975	2.243
1.948	2.055	1.942	2.062	1.935	2.07	1.927	2.079	1.919	2.089	1.909	2.1	1.899	2.113	1.887	2.128
1.853	1.949	1.848	1.955	1.842	1.962	1.835	1.97	1.827	1.979	1.819	1.989	1.809	2.001	1.799	2.014
1.758	1.844	1.754	1.849	1.748	1.855	1.742	1.862	1.735	1.87	1.727	1.879	1.719	1.89	1.71	1.901
1.663	1.738	1.659	1.743	1.654	1.749	1.649	1.755	1.642	1.762	1.636	1.77	1.628	1.779	1.62	1.789
1.568	1.634	1.564	1.638	1.56	1.643	1.555	1.648	1.549	1.654	1.544	1.661	1.537	1.669	1.53	1.678
1.472	1.529	1.469	1.533	1.465	1.537	1.461	1.542	1.456	1.547	1.451	1.553	1.445	1.56	1.439	1.567
1.376	1.425	1.373	1.428	1.37	1.432	1.366	1.436	1.362	1.44	1.358	1.445	1.353	1.451	1.347	1.458
1.28	1.321	1.277	1.324	1.274	1.327	1.271	1.33	1.268	1.334	1.264	1.338	1.26	1.343	1.255	1.349
1.183	1.218	1.181	1.22	1.179	1.222	1.176	1.225	1.173	1.228	1.17	1.232	1.166	1.236	1.162	1.24
1.086	1.114	1.084	1.116	1.082	1.118	1.08	1.121	1.078	1.123	1.075	1.126	1.072	1.129	1.069	1.133
0.989	1.012	0.987	1.013	0.986	1.015	0.984	1.016	0.982	1.019	0.98	1.021	0.978	1.023	0.975	1.026
0.891	0.909	0.89	0.91	0.889	0.911	0.888	0.913	0.886	0.914	0.884	0.916	0.882	0.918	0.88	0.921



13	14	16	18	20	22
25.995	23.179	20.67	18.434	16.443	14.669

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)
25.904	Infinity	23.088	Infinity	20.579	Infinity	18.344	Infinity	16.352	Infinity	14.578	Infinity
17.125	Infinity	15.853	Infinity	14.635	Infinity	13.474	Infinity	12.373	Infinity	11.335	Infinity
13.969	Infinity	13.114	Infinity	12.272	Infinity	11.447	Infinity	10.646	Infinity	9.871	Infinity
11.353	85.82	10.784	144.138	10.211	609.345	9.636	Infinity	9.064	Infinity	8.498	Infinity
9.562	35.095	9.158	42.015	8.742	53.971	8.319	79.337	7.891	168.143	7.461	Infinity
8.26	22.058	7.957	24.592	7.643	28.236	7.319	33.877	6.987	43.683	6.649	64.748
7.269	16.083	7.035	17.383	6.79	19.12	6.534	21.537	6.269	25.103	5.997	30.842
6.731	13.623	6.53	14.542	6.319	15.733	6.098	17.329	5.867	19.557	5.629	22.861
6.161	11.437	5.993	12.074	5.815	12.881	5.628	13.927	5.432	15.325	5.228	17.274
5.556	9.48	5.42	9.912	5.275	10.447	5.121	11.121	4.959	11.99	4.789	13.144
4.913	7.72	4.807	8.002	4.693	8.344	4.571	8.766	4.443	9.293	4.307	9.967
4.576	6.904	4.484	7.128	4.385	7.397	4.279	7.725	4.167	8.129	4.047	8.638
4.228	6.127	4.149	6.301	4.065	6.51	3.975	6.761	3.878	7.068	3.775	7.447
3.868	5.386	3.803	5.52	3.732	5.678	3.656	5.867	3.575	6.095	3.487	6.373
3.496	4.679	3.443	4.779	3.386	4.896	3.324	5.034	3.256	5.2	3.184	5.4
3.112	4.003	3.07	4.075	3.025	4.159	2.975	4.258	2.922	4.374	2.864	4.513
2.714	3.357	2.682	3.406	2.648	3.464	2.611	3.531	2.57	3.61	2.526	3.703
2.468	2.982	2.442	3.021	2.414	3.066	2.384	3.118	2.35	3.178	2.313	3.249
2.301	2.738	2.279	2.77	2.255	2.808	2.228	2.851	2.199	2.901	2.168	2.959
2.217	2.617	2.197	2.647	2.174	2.681	2.15	2.72	2.123	2.765	2.093	2.818
2.132	2.498	2.114	2.524	2.093	2.555	2.07	2.59	2.045	2.631	2.018	2.679
2.047	2.379	2.03	2.403	2.011	2.431	1.99	2.462	1.967	2.499	1.942	2.542
1.961	2.261	1.945	2.283	1.928	2.308	1.909	2.336	1.888	2.369	1.865	2.407
1.874	2.145	1.86	2.164	1.844	2.186	1.827	2.211	1.808	2.241	1.787	2.274
1.787	2.029	1.774	2.046	1.76	2.066	1.744	2.088	1.727	2.114	1.708	2.144
1.699	1.914	1.688	1.929	1.675	1.947	1.661	1.966	1.645	1.989	1.628	2.015
1.611	1.801	1.6	1.814	1.589	1.829	1.576	1.846	1.562	1.866	1.547	1.889
1.521	1.688	1.512	1.699	1.502	1.712	1.491	1.727	1.479	1.744	1.465	1.764
1.431	1.576	1.424	1.586	1.415	1.597	1.405	1.61	1.394	1.624	1.382	1.641
1.341	1.465	1.334	1.473	1.326	1.483	1.318	1.494	1.309	1.506	1.298	1.52
1.25	1.355	1.244	1.362	1.237	1.37	1.23	1.379	1.222	1.389	1.213	1.401
1.158	1.246	1.153	1.251	1.147	1.258	1.141	1.266	1.135	1.274	1.127	1.284
1.065	1.137	1.061	1.142	1.057	1.147	1.052	1.154	1.046	1.16	1.04	1.168
0.972	1.03	0.969	1.034	0.965	1.038	0.961	1.043	0.956	1.048	0.951	1.055
0.878	0.923	0.875	0.926	0.873	0.929	0.869	0.933	0.866	0.937	0.862	0.942