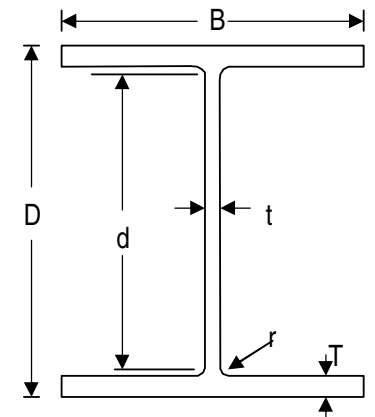


View on A-A



The specimen details

Diameter of bolt	d (mm)	20
Diameter of bolt hole	d ₀ (mm)	22
End distance	e ₁ (mm)	40
Edge distance	e ₂ (mm)	50
Spacing between centres of bolts in the direction of load transfer	p ₁ (mm)	60
Spacing between rows of bolts	p ₂ (mm)	123
Thickness of end plate	t _p (mm)	10
Horizontal distance of lever arm	B _L (mm)	490
Vertical distance of lever arm	D _L (mm)	51.7

Steel Grade		S275	S355
Dimension of Members		UB305x16 5x40	UC254x25 4x89
Depth of Section	D (mm)	303.4	260.3
Width of Section	B (mm)	165	256.3
Thickness of Web	t (mm)	6	10.3
Thickness of Flange	T (mm)	10.2	17.3
Root Radius	r (mm)	8.9	12.7
Depth between Fillets	d (mm)	265.2	200.3

Nominal Temperature

550°C

Time (minute)	Thermocouple Average(°C)	Jack Displacement (mm)	Load Angle α(°)	Beam Rotation (°)	Column Rotation (°)	Connection Rotation (°)	Force Rotation (°)	F3 from F1 (kN)	F3 from F2 (kN)	F3 Average (kN)	Tension (kN)	Shear (kN)	Moment (kN*m)
0	546.015	2.384											
1	546.124	2.383											
2	546.279	2.385											
3	546.361	2.385	55.71	0.000	0.000	0.000	58.325	-3.66	-2.69	-3.17	-1.79	-2.62	-1449.38
4	546.418	3.692	55.77	0.035	-0.002	0.037	58.231	-1.30	-0.55	-0.92	-0.52	-0.76	-421.68
5	546.541	5.221	55.76	0.084	0.041	0.043	58.192	-0.29	0.46	0.08	0.05	0.07	37.73
6	546.641	6.675	55.78	0.063	0.042	0.020	58.190	0.08	0.82	0.45	0.25	0.37	205.67
7	546.697	7.889	55.77	0.151	0.049	0.102	58.112	0.83	1.50	1.16	0.65	0.96	531.59
8	546.799	9.383	55.85	0.170	0.080	0.090	58.012	2.46	2.89	2.68	1.50	2.22	1223.78
9	546.863	10.868	55.88	0.201	0.093	0.108	57.958	4.54	4.38	4.46	2.50	3.69	2038.82
10	546.968	12.343	55.79	0.316	0.118	0.198	57.924	6.18	6.04	6.11	3.43	5.05	2791.98
11	547.007	13.803	55.64	0.506	0.111	0.395	57.893	5.25	4.82	5.03	2.84	4.15	2295.21
12	547.079	15.225	55.49	0.647	0.149	0.497	57.898	5.81	5.41	5.61	3.18	4.62	2556.36
13	547.187	16.695	55.31	0.768	0.135	0.633	57.952	6.54	5.65	6.10	3.47	5.01	2771.77
14	547.308	18.119	55.13	0.983	0.142	0.841	57.926	6.93	6.20	6.57	3.75	5.39	2978.92
15	547.420	19.525	55.00	1.125	0.146	0.978	57.913	6.93	6.61	6.77	3.88	5.55	3067.51
16	547.458	20.970	54.87	1.257	0.134	1.123	57.908	7.00	6.84	6.92	3.98	5.66	3130.42
17	547.481	22.417	54.66	1.456	0.158	1.298	57.915	7.44	6.93	7.18	4.16	5.86	3243.31
18	547.554	23.838	54.54	1.579	0.176	1.403	57.918	7.74	7.69	7.72	4.48	6.28	3478.47
19	547.675	25.256	54.40	1.701	0.179	1.522	57.931	9.06	8.41	8.73	5.08	7.10	3931.71
20	547.716	26.656	54.23	1.859	0.180	1.679	57.941	9.31	8.84	9.07	5.30	7.36	4077.22
21	547.820	28.051	54.11	1.997	0.206	1.790	57.931	9.93	9.42	9.67	5.67	7.84	4339.35
22	547.922	29.460	53.99	2.111	0.222	1.889	57.936	10.36	10.17	10.26	6.03	8.30	4598.36

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23	547.922	30.902	53.86	2.229	0.242	1.986	57.941	11.67	10.91	11.29	6.66	9.12	5051.69
24	547.985	32.295	53.72	2.357	0.248	2.109	57.958	12.34	11.76	12.05	7.13	9.71	5382.76
25	548.078	33.656	53.63	2.444	0.259	2.185	57.956	13.45	12.84	13.14	7.79	10.58	5865.66
26	548.154	35.065	53.51	2.560	0.278	2.281	57.960	13.86	13.44	13.65	8.12	10.98	6083.80
27	548.204	36.507	53.43	2.657	0.283	2.374	57.945	13.97	13.94	13.95	8.31	11.21	6212.39
28	548.283	37.924	53.35	2.742	0.284	2.458	57.947	14.81	14.16	14.49	8.65	11.62	6443.09
29	548.350	39.246	53.24	2.845	0.293	2.552	57.949	15.09	14.66	14.87	8.90	11.92	6607.97
30	548.392	40.567	53.05	2.999	0.287	2.711	57.990	14.92	14.75	14.83	8.92	11.85	6575.58
31	548.455	41.833	53.00	3.059	0.289	2.770	57.974	14.89	14.80	14.85	8.93	11.86	6577.14
32	548.534	43.122	52.84	3.213	0.308	2.904	57.981	14.99	14.71	14.85	8.97	11.83	6565.83
33	548.569	44.380	52.73	3.281	0.286	2.995	58.019	15.23	15.22	15.22	9.22	12.12	6724.21
34	548.605	45.685	52.64	3.349	0.283	3.066	58.049	15.54	15.71	15.63	9.48	12.42	6894.35
35	548.641	46.960	52.50	3.461	0.321	3.140	58.078	15.79	15.78	15.78	9.61	12.52	6950.41
36	548.712	48.136	52.41	3.526	0.336	3.190	58.101	16.26	16.18	16.22	9.90	12.85	7136.33
37	548.776	49.312	52.32	3.605	0.305	3.299	58.110	16.97	16.68	16.83	10.29	13.32	7396.14
38	548.819	50.636	52.27	3.688	0.333	3.355	58.078	17.87	17.74	17.81	10.90	14.08	7821.48
39	548.844	51.916	52.13	3.796	0.347	3.448	58.110	19.43	19.15	19.29	11.84	15.23	8457.76
40	548.856	53.286	52.06	3.923	0.327	3.596	58.055	20.76	20.35	20.56	12.64	16.21	9006.17
41	548.925	54.665	51.88	4.052	0.352	3.699	58.099	22.51	21.81	22.16	13.68	17.44	9690.03
42	548.939	56.091	51.72	4.207	0.369	3.838	58.106	23.25	22.93	23.09	14.30	18.12	10074.26
43	548.914	57.468	51.57	4.319	0.363	3.956	58.145	25.17	24.37	24.77	15.40	19.41	10789.50
44	548.974	58.902	51.49	4.429	0.377	4.052	58.117	26.81	25.80	26.30	16.38	20.58	11444.36
45	548.954	60.343	51.29	4.580	0.390	4.190	58.164	28.25	27.17	27.71	17.33	21.62	12027.32
46	549.039	61.761	51.19	4.684	0.403	4.281	58.165	31.36	30.10	30.73	19.26	23.94	13320.70
47	549.104	63.162	51.13	4.747	0.442	4.304	58.161	34.98	33.51	34.24	21.49	26.66	14833.37
48	549.143	64.620	50.96	4.876	0.455	4.421	58.201	38.43	36.79	37.61	23.69	29.21	16256.66
49	549.172	66.013	50.83	4.980	0.472	4.507	58.226	41.17	39.75	40.46	25.56	31.37	17460.80
50	549.189	67.407	50.72	5.078	0.521	4.557	58.234	43.84	41.83	42.84	27.12	33.16	18462.15
51	549.201	68.848	50.57	5.226	0.488	4.738	58.239	45.55	43.56	44.55	28.30	34.41	19165.77
52	549.247	70.288	50.56	5.308	0.527	4.781	58.171	47.11	44.95	46.03	29.24	35.55	19796.68

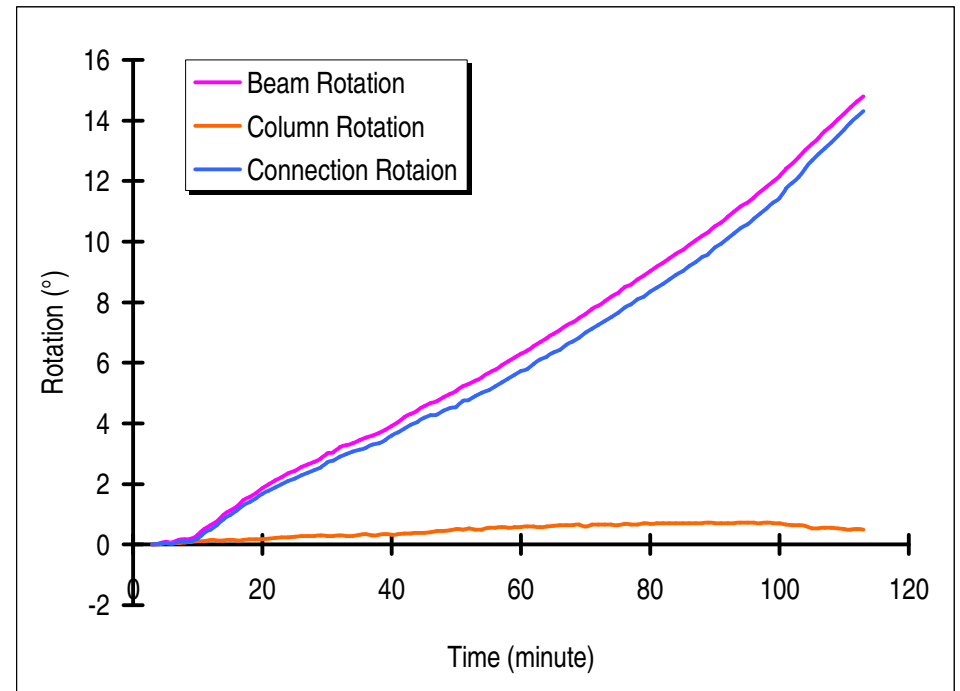
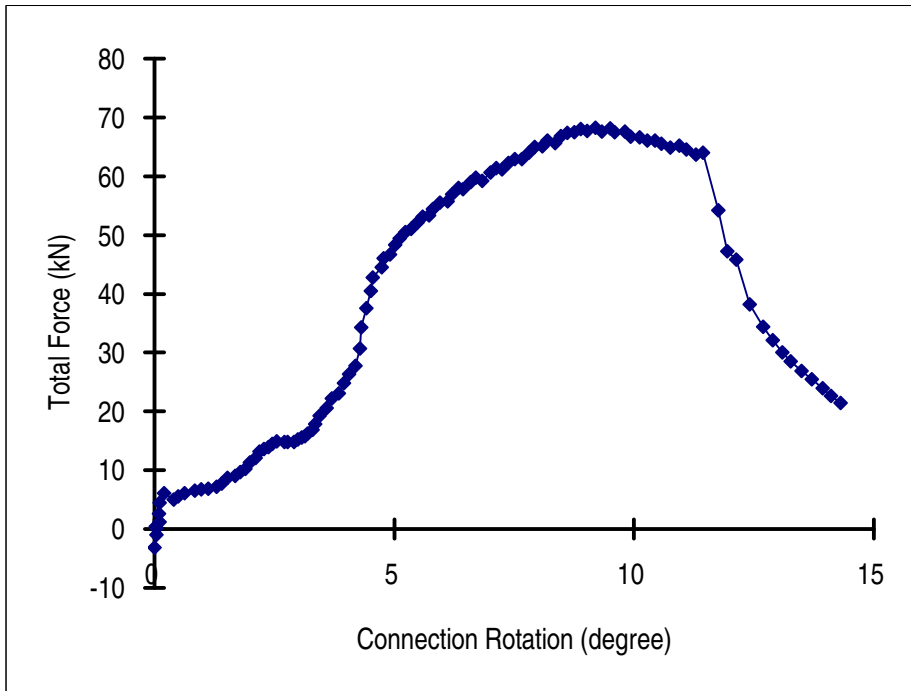
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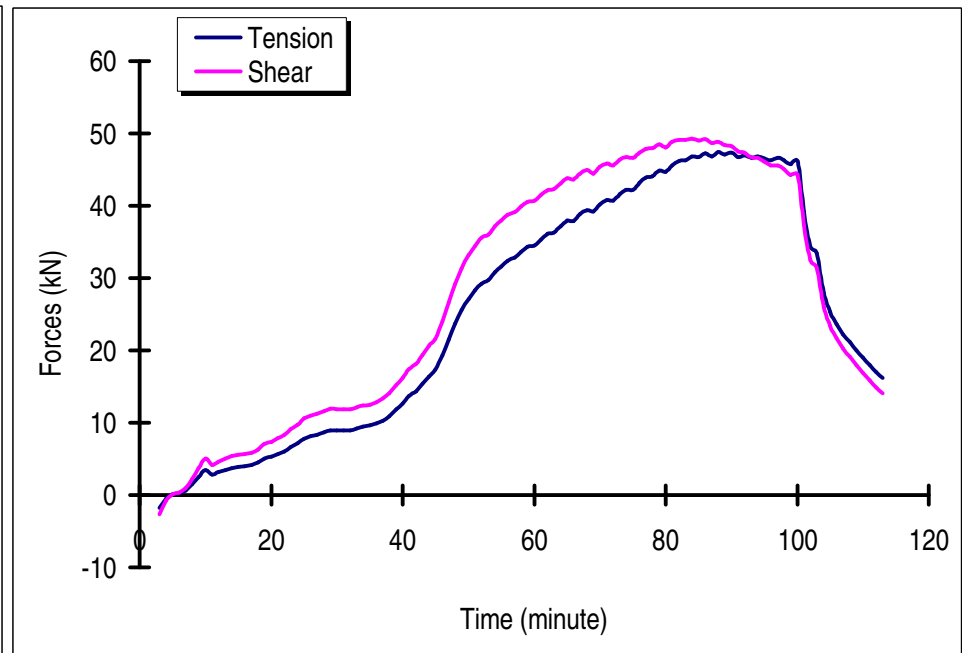
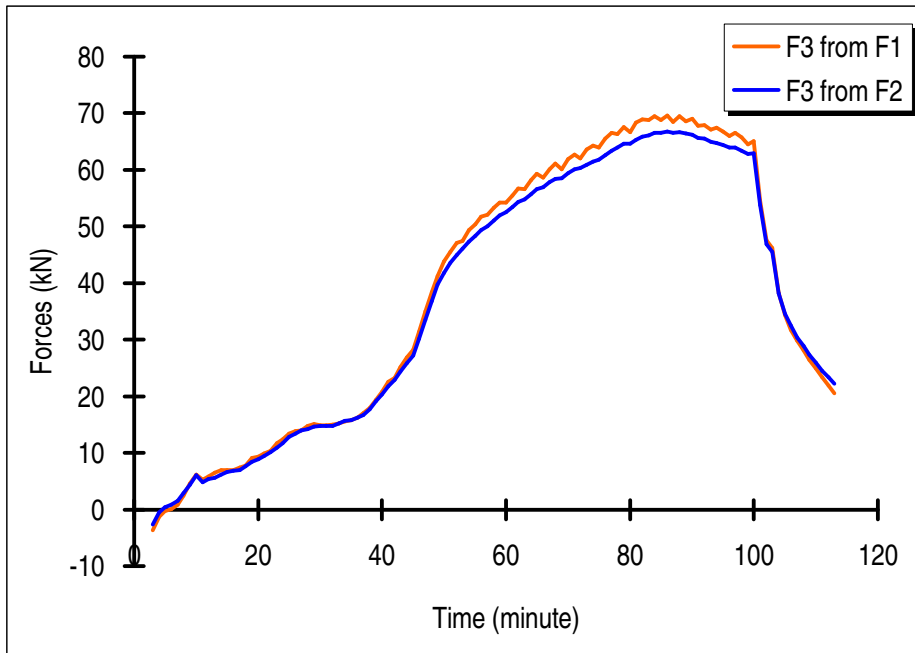
53	549.261	71.666	50.50	5.411	0.496	4.915	58.127	47.39	46.03	46.71	29.71	36.04	20074.01
54	549.289	73.054	50.39	5.521	0.501	5.019	58.128	49.31	47.28	48.30	30.79	37.20	20726.99
55	549.311	74.432	50.22	5.660	0.551	5.109	58.154	50.42	48.33	49.38	31.59	37.95	21146.02
56	549.329	75.825	50.09	5.785	0.556	5.229	58.156	51.69	49.31	50.50	32.40	38.74	21591.82
57	549.393	77.242	50.00	5.931	0.582	5.349	58.100	52.03	50.02	51.03	32.80	39.09	21792.18
58	549.404	78.674	49.87	6.051	0.564	5.487	58.110	53.30	51.06	52.18	33.63	39.90	22247.04
59	549.449	80.140	49.73	6.181	0.585	5.595	58.128	54.22	51.96	53.09	34.32	40.51	22592.74
60	549.480	81.630	49.68	6.304	0.578	5.726	58.052	54.23	52.52	53.37	34.54	40.69	22698.92
61	549.517	83.096	49.60	6.404	0.600	5.803	58.030	55.47	53.42	54.45	35.29	41.46	23132.18
62	549.536	84.577	49.45	6.551	0.596	5.955	58.036	56.70	54.28	55.49	36.08	42.16	23527.76
63	549.552	86.037	49.36	6.691	0.580	6.111	57.980	56.58	54.81	55.70	36.27	42.27	23590.08
64	549.564	87.509	49.24	6.811	0.609	6.201	57.983	58.19	55.72	56.95	37.18	43.14	24082.40
65	549.635	88.974	49.07	6.956	0.621	6.335	58.012	59.33	56.60	57.97	37.98	43.79	24454.21
66	549.673	90.431	49.01	7.087	0.650	6.437	57.942	58.58	56.95	57.77	37.89	43.60	24350.76
67	549.731	91.874	48.85	7.237	0.643	6.594	57.948	60.13	57.82	58.97	38.81	44.40	24807.04
68	549.762	93.314	48.73	7.338	0.638	6.700	57.963	61.09	58.46	59.77	39.42	44.93	25104.73
69	549.822	94.804	48.62	7.489	0.657	6.832	57.928	60.05	58.48	59.26	39.18	44.47	24852.31
70	549.860	96.293	48.51	7.612	0.607	7.005	57.915	61.91	59.38	60.65	40.18	45.43	25394.21
71	549.891	97.792	48.31	7.787	0.658	7.129	57.942	62.70	60.05	61.38	40.83	45.83	25630.34
72	549.926	99.289	48.24	7.897	0.652	7.245	57.893	62.03	60.27	61.15	40.72	45.62	25513.90
73	549.911	100.755	48.09	8.043	0.668	7.375	57.903	63.63	60.90	62.27	41.59	46.34	25923.47
74	549.967	102.235	47.91	8.187	0.670	7.517	57.934	64.34	61.50	62.92	42.17	46.69	26132.57
75	550.027	103.702	47.86	8.307	0.646	7.661	57.872	63.94	61.83	62.88	42.20	46.62	26096.87
76	550.047	105.160	47.62	8.497	0.683	7.813	57.913	65.51	62.56	64.03	43.16	47.30	26489.20
77	550.112	106.626	47.50	8.594	0.661	7.933	57.938	66.51	63.37	64.94	43.87	47.88	26818.43
78	550.128	107.962	47.40	8.759	0.665	8.093	57.880	66.37	63.90	65.13	44.09	47.94	26858.77
79	550.158	109.349	47.24	8.887	0.695	8.192	57.910	67.53	64.64	66.08	44.87	48.52	27189.90
80	550.190	110.822	47.12	9.033	0.683	8.350	57.882	66.65	64.60	65.63	44.66	48.09	26956.78
81	550.188	112.303	46.96	9.168	0.694	8.474	57.907	68.31	65.34	66.83	45.61	48.84	27386.73
82	550.259	113.706	46.78	9.313	0.712	8.601	57.946	68.96	65.85	67.41	46.17	49.12	27552.47

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83	550.361	115.099	46.69	9.460	0.700	8.760	57.884	68.76	66.13	67.45	46.26	49.08	27534.53
84	550.326	116.509	46.48	9.607	0.713	8.894	57.948	69.53	66.50	68.02	46.84	49.32	27683.40
85	550.393	117.991	46.39	9.736	0.708	9.028	57.906	68.83	66.56	67.70	46.69	49.02	27518.47
86	550.373	119.489	46.19	9.895	0.704	9.190	57.950	69.63	66.78	68.20	47.22	49.22	27642.36
87	550.432	120.976	46.09	10.033	0.705	9.328	57.911	68.52	66.57	67.54	46.84	48.66	27334.84
88	550.439	122.402	45.87	10.199	0.703	9.496	57.962	69.53	66.66	68.09	47.41	48.88	27470.04
89	550.492	123.932	45.80	10.323	0.722	9.600	57.916	68.59	66.38	67.49	47.05	48.38	27193.95
90	550.564	125.404	45.57	10.512	0.709	9.802	57.955	69.01	66.15	67.58	47.31	48.26	27140.46
91	550.601	126.870	45.47	10.643	0.712	9.930	57.921	67.77	65.59	66.68	46.76	47.54	26739.27
92	550.607	128.328	45.22	10.819	0.707	10.112	57.994	67.86	65.47	66.67	46.96	47.32	26634.34
93	550.607	129.762	45.08	10.994	0.712	10.282	57.963	67.10	64.94	66.02	46.62	46.75	26318.93
94	550.607	131.290	44.86	11.161	0.720	10.441	58.015	67.40	64.75	66.08	46.84	46.61	26253.10
95	550.645	132.867	44.74	11.293	0.726	10.567	58.006	66.73	64.41	65.57	46.58	46.15	26002.94
96	550.654	134.397	44.58	11.468	0.715	10.753	57.985	65.93	63.91	64.92	46.24	45.57	25685.24
97	550.666	135.967	44.36	11.640	0.701	10.939	58.031	66.54	63.89	65.22	46.62	45.60	25714.84
98	550.721	137.480	44.20	11.812	0.719	11.093	58.022	65.71	63.44	64.57	46.29	45.02	25397.50
99	550.748	138.943	44.02	11.996	0.707	11.289	58.014	64.55	62.83	63.69	45.80	44.26	24981.05
100	550.796	140.331	43.81	12.146	0.709	11.437	58.082	65.09	62.94	64.01	46.20	44.31	25021.90
101	550.804	141.887	43.58	12.406	0.653	11.753	58.048	54.58	53.75	54.17	39.24	37.34	21097.41
102	550.894	143.472	43.44	12.583	0.643	11.940	58.012	47.60	46.89	47.25	34.31	32.49	18360.17
103	550.907	144.889	43.23	12.779	0.645	12.134	58.022	46.22	45.48	45.85	33.41	31.41	17760.14
104	550.904	146.491	42.98	13.025	0.610	12.415	58.030	38.29	38.15	38.22	27.96	26.06	14743.62
105	550.934	148.029	42.75	13.234	0.542	12.692	58.052	34.37	34.52	34.44	25.29	23.38	13236.89
106	550.956	149.591	42.53	13.429	0.533	12.896	58.072	31.72	32.51	32.12	23.67	21.71	12299.19
107	551.008	151.128	42.29	13.655	0.564	13.091	58.094	29.83	30.34	30.08	22.25	20.24	11472.67
108	551.003	152.699	42.10	13.824	0.555	13.269	58.106	28.05	28.90	28.47	21.12	19.09	10826.30
109	551.042	154.252	41.88	14.026	0.536	13.490	58.125	26.43	27.29	26.86	20.00	17.93	10176.49
110	551.094	155.798	41.66	14.224	0.518	13.706	58.152	24.97	25.98	25.48	19.03	16.93	9615.01
111	551.116	157.352	41.44	14.427	0.498	13.929	58.171	23.38	24.50	23.94	17.95	15.84	9001.57
112	551.132	158.857	41.23	14.619	0.507	14.112	58.187	21.87	23.35	22.61	17.00	14.90	8469.05

113	551.178	160.378	41.00	14.801	0.499	14.302	58.234	20.58	22.22	21.40	16.15	14.04	7987.18
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Photographs after Test

